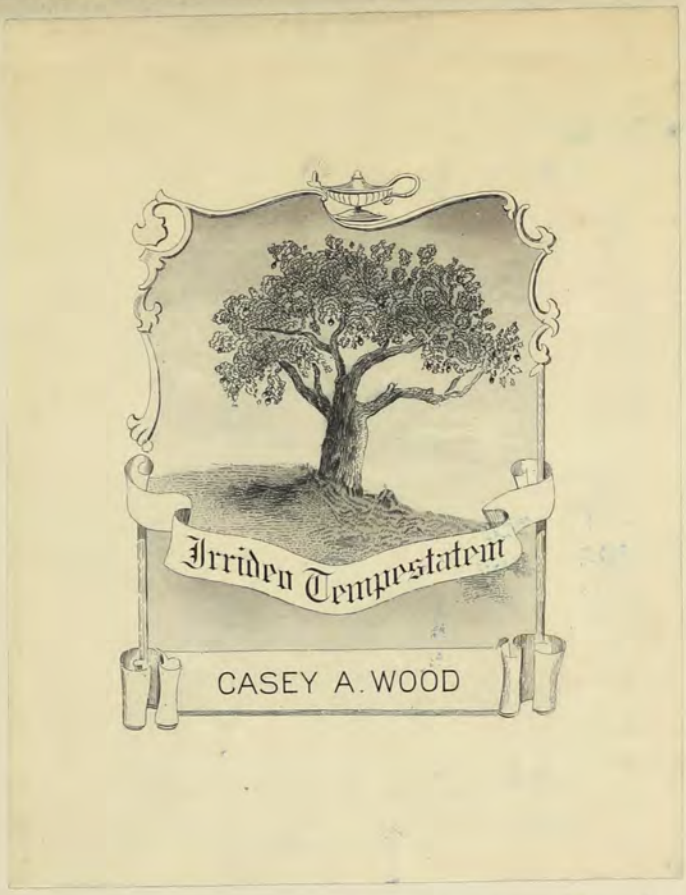

This working copy to be sent eventually to the C.S.W. Library of Ornithology, McGill University, Montreal Canada

During 1936-38 I made a collection of books, MSS and other material to illustrate and assist in publishing with Dr. Adele Kibre a work on Medieval Ornithology and Falconry based chiefly on a Translation and English edition of the Emperor Frederick II's De arte Venandi, the principal BOOKS (I-II) of which, with 900 col. miniatures, are in the Vatican Library. This collection, with those already in the McGill Libraries, form the most complete gathering of source material of their kind in any U.S.A. University Library, perhaps the best in all America — C.A.W.

DR. CASEY WOOD
AMERICAN EXPRESS CO.

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ACC. NO. REC'D

Can. Med. Journal, Jan. 1/32.

and spleen, the vermiform appendix, the intestines and the mesentery, the kidneys, ureter and bladder, as well as the male and female genital organs.

This book is well written, and, though somewhat controversial, clearly sets forth Morley's views on this important subject. It is a stimulating expression of opinion and is well worth reading.

An Introduction to the Literature of Vertebrate Zoology, based chiefly on the titles in the Blacker Library of Zoology, the Emma Shearer Wood Library of Ornithology, the Bibliotheca Osleriana, the Gest Library of Chinese Literature and other Libraries of McGill University, Montreal. Compiled and edited by Casey A. Wood, M.D., LL.D., Collaborator, Division of Birds, Smithsonian Institute. 643 pages. Price $15.00. Oxford University Press, London, 1931.

Many of us, in medicine and science to-day, are perhaps too prone to think that the chief function of a library is to supply us as promptly as possible with volume fifty of "S. G. & O.," or whatever contemporary journal we may be in search of at the moment. We forget that the ideal library should represent not only the present but the past also, and that its shelves are a pageant of the history of thought. McGill, with the memory of Osler before it, should be less liable than other universities to fall into this error; yet the error is excusable anywhere, so insistent are the demands of the present, and so vague, numerous, and confused the voices of the past. We owe, therefore, a great debt to workers who, like Dr. Casey Wood, have collated and interpreted these voices for us. This volume, then, is a guide to the literature of vertebrate zoology, both ancient and contemporary, as it is represented—and it is exceedingly well represented, thanks not a little to Doctor Wood himself—in the collections at McGill. The main part of the book is modestly described as a catalogue—a "partially annotated catalogue of the vertebrate zoological items in all the University libraries." But it is a catalogue with an imagination, a patient devotion, an enormous scholarliness. Open it at random and read three successive entries: "Chichester", "Chi Huang", "Chikhachev"; note that the last name has been transliterated from the French version of the name, "Tchihatcheff", which appears on the title-page of the book referred to. Turn a few pages, and find Wang Cho's "Lung ching, a short compilation on the dragon." Glance at the succinct annotations, and remark that the "Etymologiæ" of St. Isidorus of Seville has earned its place because "Liber XX. Cap. 12 is entirely devoted to animals," and Koldewey's "German Arctic Expedition of 1869-70," because there are "some 24 references to birds, scattered throughout the volume." Imagination, devotion, scholarliness! These qualities are rare in catalogues, and disarm criticism. It is a little odd to find Newton Harvey's "Nature of Animal Light", which reviews the little that is known of the mysterious chemistry of luminescence in animals, described as "a little work on faunal psychology", but such trivial slips are few—how few, probably none but the learned compiler is competent to judge. The catalogue is preceded by an index in chronological and geographical order, and this in turn by a long but concise introduction, in which the various classes of the books, manuscripts, periodicals, drawings and so forth are dealt with by subjects, each subject taken chronologically—an introduction which should enable even the beginner to make use of the great catalogue itself, and through it the libraries—a key, not only to the collections at McGill, but almost equally well to any libraries of similar scope and standing. The book is most handsomely printed and produced, and will be invaluable to those who aspire to Doctor Johnson's "second kind of knowledge"—knowing where information on a subject may be found.

London, Oct 2a/31. ? For a possible supplement ?

Vol. I

DR. CASEY WOOD
ZOOLOGICAL LIBRARY,
BRITISH MUSEUM, (NATURAL HISTORY),
CROMWELL ROAD,
LONDON, S.W. 7.

DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

Interleaved copy (loaned from Blacker Library) for
(especially of Library additions)
notes, subsequent to the publication of this volume: — especially
critiques, corrigenda and addenda by Dr. de Résillac-Roese and Capt. H.S. Gladstone

Nov 2a/32
DR. CASEY WOOD
295 WIGMORE DRIVE
PASADENA, CALIFORNIA

Will Mr. England kindly hold
this volume for the undersigned
until he - the Fates permitting -
pays the Museum a visit
Sometime during 1933 -

Casey A. Wood

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copy of the work will place the Library on the mailing list to be able to contribute *in exchange* books, periodicals, separates, or tracts. Some of these may fill gaps in one of the University libraries.

THE BLACKER LIBRARY will also be grateful for *autograph or typescript letters of naturalists*, the purpose of which is stated on page 643 of the *Introduction*, under the heading ZOOLOGISTS.

Exchanges are to be addressed to:

THE LIBRARIAN,
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N.B.—If the work is reviewed by you kindly send a copy of the critique to:
DR. CASEY WOOD, AUTHORS' CLUB, 2 WHITEHALL COURT, LONDON, S.W. 1.

Can. Med Journal. Jan 1/32.

and spleen, the vermiform appendix, the intestines and the mesentery, the kidneys, ureter and bladder, as well as the male and female genital organs.

This book is well written, and, though somewhat controversial, clearly sets forth Morley's views on this important subject. It is a stimulating expression of opinion and is well worth reading.

This working copy to
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London, Oct 20/31. ? For a possible supplement ?

DR. CASEY WOOD
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DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

Vol. I

Interleaved copy (loaned from Blacker Library) for (especially of library additions) notes, subsequent to the publication of this volume: special critiques, corrigenda and addenda by Dr. de Résillac-Roese and Capt. H.S. Gladstone

The treatise above entitled is divided into three main sections. The *first* consists of introductory matter which furnishes a brief account of the literature of Vertebrate Zoology from the earliest times to the present—from the writings of ancient and medieval zoologists, Aristotle, Pliny the Second, Dioscorides, Averroës, *et al*, to the more important treatises and monographs on ornithology, mammalogy, ichthyology, herpetology, and amphibiology of the twentieth century. Included are general treatises and numerous periodicals and serials, monographs on vertebrate palaeontology, zoogeography, ecology, psychology, bionomics, experimental zoology, &c., likely to interest the advanced student and the librarian.

Brief descriptions are also given of Natural History Societies, Museums, and Zoological Stations throughout the world; travelogues of naturalists; drawings of animal painters and illustrators, more than 5000 originals of which are in the McGill libraries.

It is hoped that *physicians* and *medical* libraries will find the work useful. As is well known, not only were the majority of ancient and medieval writers on natural history physicians, but many modern treatises on comparative and systematic zoology are the products of medical men.

The *second* section of this *Introduction* is an arrangement of the Library Contents (on Vertebrate Zoology) in both chronological and geographical order so that a work on any desired subject can be quickly found and delivered to the student by the librarian.

The *third* section is the largest and most valuable for both the research student and the librarian—a partially annotated *Catalogue* of the vertebrate zoological items in all the University libraries, forming a very large selection of important works on that vast subject.

The McGill libraries are particularly rich in incunabula and other fundamental treatises on vertebrate zoology, as will be seen by consulting Chapter xix, page 127, in which a number of rare and unique items are briefly described.

It may here be added that with the continual additions to the various University Libraries the collections now approach a total of 400,000 volumes.

DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

WATER SUPPLY PAPERS.—No. 620. Geology and ground-water resources of Western Sandoval Co., N. M. (35 cents).—No. 637. B. Ground-Water supply of Mimbres Valley, N. M. 637. C. Water power resources of the McKenzee R., Oregon (15 cents). 637. D. Geology and Water Resources of the Middle Deschutes R. Basin, Oregon. No. 638. A. Artesian Water Supply of Memphis, Tenn.

Papers on the Surface Water Supply in the Drainage Basins named below. These are grouped geographically.—North Atlantic Slope. Nos. 641, 661 (35 cents each). South Atlantic Slope, Eastern Gulf of Mexico. No. 642. Western Gulf of Mexico (20 cents each).

Hudson R. and Upper Mississippi R., Nos. 645, 665 (20 cents each). Lower Mississippi R., No. 667 (15 cents). St. Lawrence R., No. 664 (20 cents). Ohio R., No. 643 (35 cents). Missouri R., No. 666 (35 cents).

The Great Basin. No. 670 (20 cents). Colorado R. No. 669 (20 cents).

Pacific Slopes, California. Nos. 651, 660, 671, 691 (45 cents each).

North Pacific Slope, Washington, Upper Columbia R. No. 652 (20 cents), No. 672 (25 cents). Snake R. No. 653 (35 cents), No. 673 (25 cents). Oregon, Lower Columbia R. No. 654 (20 cents), No. 674 (25 cents).

MISCELLANEOUS SCIENTIFIC INTELLIGENCE.

An Introduction to the Literature of Vertebrate Zoology. Based chiefly on the Titles in the Blacker Library of Zoology, the Emma Shearer Wood Library of Ornithology, the Bibliotheca Osleriana, and other libraries of McGill University, Montreal. Compiled and edited by CASEY A. WOOD. 4to. Pp. xix, 643. Frontispiece in color. London, 1931 (Oxford University Press, price $15.00 or 3 guineas).—The thanks of all interested in the natural history of vertebrate animals are due to the compiler of this great work. A large proportion of the world's important titles are listed in its pages. The Blacker Library of Zoology aims to supply literary material "that will meet the varied wants of a University in which not only the student body, but research scholars, librarians, and the public generally may consult quickly nearly every work on zoology likely to interest them." The Wood Library of Ornithology is rich in complete sets of periodicals and serials devoted to bird-life in many languages. The Osler Library, collected and donated by Sir William Osler, was formed especially to illustrate the history of medicine. A large number of oriental works on zoology are contained in the Gest Chinese Research Library. The Lyman Library of Entomology and the general University library include

FROM THE OFFICE OF THE
AMERICAN JOURNAL OF SCIENCE
NEW HAVEN, CONN.
JAN - 1932

M. FAY
ROOM 333
SECURITY BUILDING
PASADENA, CALIFORNIA

ans. Oct 16/31

October 1, 1931

Dr. and Mrs. Casey Wood,
Author's Club,
London, England.

Dear Friends:

I have been requested by Mrs. Nellie C. Blacker to announce to you the death of her beloved husband, Robert R. Blacker, at Santa Monica, California, on September 16, 1931. The funeral was held from the Pasadena Presbyterian Church at Pasadena, California, on September 18th.

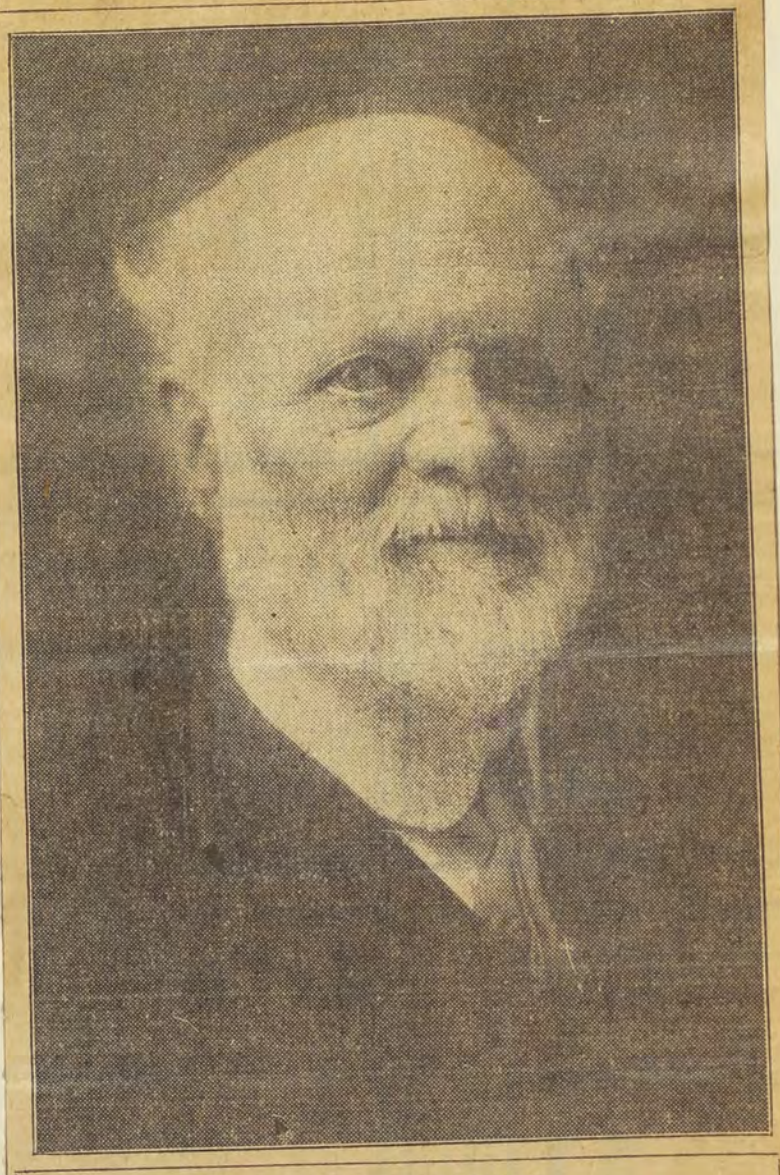
Mrs. Blacker also requested me to acknowledge receipt of your letter to Mr. Blacker.

Mr. and Mrs. Blacker left Pasadena for Santa Monica to spend the summer months and had arranged to return to Pasadena on October 1st. Mr. Blacker was in quite good health to about September 1st, at which time he had an attack of Influenza followed by a heart attack which caused his demise.

Mrs. Blacker also advised me to say to you that she has just learned of your intention to come to Pasadena at an early date and will greatly appreciate a visit from you.

Pasadena News.
PASADENA, CALIFORNIA, WEDNESDAY, SEPTEMBER 16, 1931

Benefactor to Educational Cause Here Passes Away at Beach House



ROBERT R. BLACKER
Member of Board of Trustees of California Institute of Technology and Generous Friend of College.

CITY LOSES MODEST, UNSELFISH FRIEND IN ROBERT BLACKER

Member of California Institute's Trustee Board Passes at Beach Home; Was Donor of Student Hall, Scholarships

Within a month of observing his 86th birthday, Robert Roe Blacker, retired lumberman, patron of education and the arts and creator of one of Pasadena's most beautiful

like many other Canadians, he migrated to the United States to seek larger fortune. And, like other Canadians, fortune smiled on him generously.

homes and gardens, died this morning at his Santa Monica beach home, 215 Georgina avenue. He had been ailing for some time and had been under the care of physicians.

The widow, Mrs. Nellie Canfield Blacker, and two nephews, Edward J. Blacker, of Pasadena and Edward Miles Blacker, of Brantford, Ontario, Canada, are the only survivors. The funeral, which will be private, will be held on Friday afternoon in Pasadena. It is expected that the body will be cremated and the ashes taken to Brantford, the Canadian boyhood home of Mr. Blacker.

A member of the Pasadena Presbyterian Church, Mr. Blacker lived his religion in his daily life and benefactions. He was a member of the Masonic lodge of Manistee, Mich., where he lived for many years after moving from Canada and before coming to Pasadena, in 1907.

Sons of Ontario

Mr. Blacker was a son of western Ontario, a province which has contributed to Pasadena also Arthur H. Fleming, president of the board of trustees of the California Institute of Technology, and many others. Mr. Blacker, who has been a generous benefactor and friend of the Institute, had been one of the trustees for twelve years. He was the son of the owner of a brickworks at Brantford, but as a young man, he went into the lumber and salt-manufacturing business at Manistee, Mich., and made such a success of the venture that, twenty-four years ago and when he was little more than 60, he was able to leave his interests in other hands and retire to Pasadena. His first wife had died and was buried in Manistee. Mrs. Nellie C. Blacker was his second wife.

Their home at 1177 Hillcrest avenue they developed into one of the early show places of Pasadena, and it was their delight to show friends and interested residents its many treasures. At times Mr. and Mrs. Blacker have entertained student classes of the California Institute and their friends at the Hillcrest home.

Tributes of Colleagues

"Pasadena loses in Mr. Blacker a good citizen and the California Institute loses one of its best friends," said Arthur H. Fleming, head of the Institute's trustee board, when informed of the death of his old friend and colleague. "He was a very retiring man, preferring to do good unostentatiously rather than letting the world know about it. But he was a man of most excellent business judgment, and we of the Institute board had learned to rely much upon this judiment. He also let it guide him in his benevolence, so that his gifts did the most good.

"Mr. Blacker had always been

(Continued on Page Thirty-seven)

interested in educational work. Long ago, I recall, he gave a beautiful library to McGill University, Montreal. He has contributed very largely to the California Institute in the way of endowment funds for scholarships and fellowship and also for scientific research.

"His latest gift has been that of one of the new undergraduate houses and now known as Blacker House. He always has been active in philanthropic work here and elsewhere, and many will remember him for his true generosity."

Remembered For Modesty

"Mr. Blacker was an exceedingly modest man, never taking a prominent part in affairs but responding very generously, yet discriminatingly, when his help was needed," said Dr. William B. Munro, speaking as a member of the executive council of the California Institute in the absence of Dr. Robert A. Millikan, its chairman. Dr. Munro, by the way, is another son of Ontario, Canada, who is proud to call Pasadena his home.

"He was a man of very sound business judgment, and we relied a good deal upon him," said Dr. Munro. "Though he gave generously to build Blacker House, one of the new undergraduate halls, he never saw it in being, though he had promised Dr. Millikan quite recently that he was looking forward to his first visit since the building was finished.

"It is planned to place his portrait, which was done recently by Seymour Thomas, in Blacker House, so that students of this generation and generations to come may look upon one of Pasadena's most noble and at the same time most modest benefactors."

Minister Lauds Modesty of Philanthropist

FLORAL OFFERINGS ARE NUMEROUS

Presbyterian Chapel Is Scene of Services

Masses of beautiful blooms that overflowed onto and nearly filled the platform at the Pasadena Presbyterian Church, and attendance of friends, old associates and employes at the funeral service yesterday, marked the final public respects paid to the memory of Robert R. Blacker, retired lumber man, philanthropist and trustee of the California Institute of Technology, who died at Santa Monica on Wednesday.

Reading of the poetic setting of the twenty-third Psalm and of excerpts from the Sermon on the Mount ushered in appropriate remarks by Dr. Robert Freeman on the life, character and worth of Mr. Blacker. The minister's quiet climax was, "Let us bow together in respect to a good man!" and the theme of his address was "When thou doest alms, let not thy left hand know what thy right hand doeth."

"Mr. Blacker was one of the Order of the Right Hand," said Dr. Freeman; "he was ever careful to keep his benevolence from the knowledge of men, and preferred that those who benefited from his giving should prove their graitude by following the same rule. We are in need constantly of new members of this fraterntiy.

Church Gift Recalled

"Our city has been peculiarly blessed in the number of its men and women belonging to this Order of the Right Hand. Before this church was begun, when the Presbyterian family were still worshipping at the corner where the post office now stands, they were hard put to it to know where money was to come from for their new edifice. It was at that dark moment when a pledge, bearing no name and for a considerable sum of money, was given, and it was only later that some of us learned that Mr. Blacker was the giver.

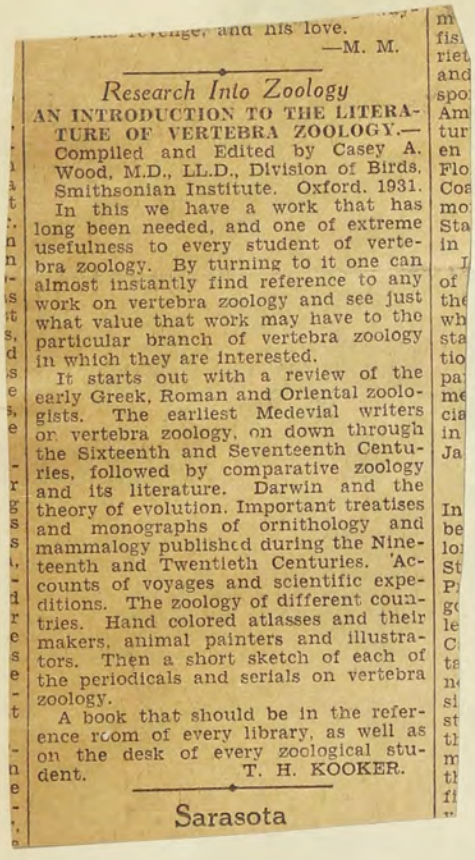
"He had a sense of duty well balanced with his sense of humor," continued Dr. Freeman. "His firm convictions left an open door to new convictions. I do not know any man who was more fit to live and more fit to die, and he had courage for either life or death. His great satisfaction in life was to do good to others, and even to the end his concern was for others."

Pay Last Respects

As the old tune, "Rock of Ages" sounded from the organ, the friends took a last look at the encoffined veteran of peace service.

Pallbearers at the service were Lawrence Marsh, Robert C. Wente, Harvey W. Hincks, Albert Engvall, Edward C. Barrett and Harold Wheeler. James H. Shearer played the musical portions with Adolf Tandler, violinist, assisting.

Survivors of the 85-year-old philanthropist are the widow, Mrs. Nellie Canfield Blacker, and two nephews, Edward J. Blacker, of Pasadena, and Edward Miles Blacker of Brantford, Ont., Canada.



and his love.
—M. M.

Research Into Zoology

AN INTRODUCTION TO THE LITERATURE OF VERTEBRA ZOOLOGY.—Compiled and Edited by Casey A. Wood, M.D., LL.D., Division of Birds, Smithsonian Institute. Oxford. 1931.

In this we have a work that has long been needed, and one of extreme usefulness to every student of vertebra zoology. By turning to it one can almost instantly find reference to any work on vertebra zoology and see just what value that work may have to the particular branch of vertebra zoology in which they are interested.

It starts out with a review of the early Greek, Roman and Oriental zoologists. The earliest Medevial writers on vertebra zoology, on down through the Sixteenth and Seventeenth Centuries, followed by comparative zoology and its literature. Darwin and the theory of evolution. Important treatises and monographs of ornithology and mammalogy published during the Nineteenth and Twentieth Centuries. 'Accounts of voyages and scientific expeditions. The zoology of different countries. Hand colored atlasses and their makers, animal painters and illustrators. Then a short sketch of each of the periodicals and serials on vertebra zoology.

A book that should be in the reference room of every library, as well as on the desk of every zoological student.

T. H. KOOKER.

Sarasota

The Oologist SOME BOOKS Oct/31.

We have recently added to our library at Lacon, a number of Books, which deserve some mention.

"AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY," based chiefly on the title in the Blocher Library of Zoology —the Emma Shearer Wood Library of Ornithology—the Bibliotheca— and other Libraries of the McGill University, Montreal—compiled and edited by Casey A. Wood, M. D., LLD. Collaborator of the Division of Birds, Smithsonian Institution. Oxford University Press, London. Humphrey Milford 1931. $15.00."

This splendid compilation evidences an extraordinary amount of research in gathering together the information under the various titles contained in its 643 pages. It places the research student covered by its special sphere, under very lasting obligations to Dr. Wood, and will in our opinion be a long and universally used reference work among those desiring to explore the realms of the literature covering this specialty. It shows as do all of Casey A. Wood's publications a thoroughness of research and a mechanical attractiveness which is not often to be found in similar books.—R. M. B.

AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY. Compiled and Edited by Casey A. Wood, M.D., LL.D. London. Oxford University Press, 1931, £3/3/-. Australian Zoologist. Vol. 7. pt 2. p. 86, 1932.

This very handsome volume of 644 pages, quarto size, contains a comprehensive review of the beginnings of zoological records from those of Aristotle onwards, including not only Greek and Roman authors, but Arabian and Chinese writers on vertebrate zoology. The mediaeval writers; the Renaissance and its effect on the records of zoological science; reports of voyagers and naturalists; the forerunners, contemporaries, and followers of Linnaeus, and the modern exponents of the science are all ably summarised in this volume as an introduction to the main work, which consists of a series of indices to the contents of the Blacker, the Emma Shearer Wood, and other libraries of the McGill University, Montreal. A beautiful reproduction in colour of an aquarelle of the Dodo, attributed to Charles Collins (*ca.* 1736) forms a frontispiece to a volume which should find acceptance in every zoological library. Dr. Casey Wood will be remembered by many Australian zoologists, who had the pleasure of meeting him on the occasion of his visit to Sydney in 1922. He is an authority on birds, and is Collaborator, Division of Birds, Smithsonian Institution.

16 October 1931.

Books sent to McGill University, Montreal, Canada.

1. Annals of Medical History. (Med. Fac.). 5 vols.
2. Journal für Ornithologie. Cabanis. Vols.13 and 17. (Vols. 1-12 and 14-16 already sent).
3. Ornithological Papers. Prince Bonaparte,
4. The Genera of Birds. Gray. Vols. 1,2,3.
5. Folio of Original Drawings by Gould.
6. Hunt. Miscellany. 2 vols.
7. Pinkerton's Voyages and Travels. 17 volumes.
8. Introduction to the Literature of Vertebrate Zoology. Rough corrected manuscript.
9. Ditto - revised proof sheets.
10. British Assoc. for the Advancement of Science. A Retrospect.
11. Original Drawing of Red-breasted thrush by William Foster.
12. Saggio ... degli Animali Vertebrati. C.L.Bonaparte. 1851.

over

POSTAL CARD.

AFFIX
STAMP
HERE.

Dr. CASEY WOOD,
AUTHORS' CLUB,
2 WHITEHALL COURT,
LONDON, S.W.1,
England.

London, July 5th, 1931.

A complimentary copy of Dr. Casey Wood's Introduction to the Literature of Vertebrate Zoology, 4to., pp. 780, col. frontispiece, Oxford University Press, 1931, has been reserved for you, and will be mailed post free on return of your full address, typed or very plainly written below, and on this card:—

Dr G. C. Savage
167 8th Ave. N.
Nashville, Tenn. U.S.A.

Mrs B.
Mark off.
Dead

Dr. Savage is deceased, but if the copy is available I should gratefully appreciate it for my collection. Was a friend of Dr. Wood's. Will forward to his widow.

DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

London, July 5th, 1931.

Dr. C. W. Andrews.
Nat. Hist. Museum. London SW.7

A complimentary copy of Dr. Casey Wood's Introduction to the Literature of Vertebrate Zoology, 4to., pp. 780, col. frontispiece, Oxford University Press, 1931, has been reserved for you, and will be mailed post free on return of your full address, typed or very plainly written below, and on this card:—

my dear Casey Wood
my dear old friend Andrews died in 1924. I do not know his present address. Hope you flourish
Yrs
Daniel Giraldo Elliot

"INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY"
by Dr. Casey A. Wood, reviewed by Frederick M. Hopkins
in THE PUBLISHERS' WEEKLY, Dec.26,1931, Vol.CXX, No.26.
p.2746.

The apparent increase of interest in rare books on natural history in the auction rooms this past year should make the appearance of Casey A. Wood's "Introduction to the Literature of Vertebrate Zoology" (Oxford: The University Press, 1931. 634 p. 4) monentous to bookmen. This catalog is based on the collections of McGill University, Montreal - one of the richest groups in the world - and Mr. Wood has compiled it in a way that discloses him not only as an eminent naturalist but as a competent bookman. His introductory essay, surveying the literature historically, is a real source of information, and the catholicity of inclusion in the catalog itself - ranging from a 14th century manuscript of Aristotle's writings to a 1930 pamphlet, "Golf Clubs as Bird Sanctuaries," published by the Audubon Societies - makes it a generally useful reference tool for all who handle books in this field. Its great strength in American authors, Audubon, Edwards, and others, gives it a unique place among general bibliographies of natural history. Mechanically, this magnificently printed catalog is all that it should be: it is equipped with indexes and cross-references, as needed; the entries are full, with full collation which generally includes pagination; number of plain and colored plates, size, etc. One feature of immense value to the trade is the volume's check-list of the more important periodicals - period covered, number of parts, pagination, presence of plates, etc., for each volume. In his notes, Mr. Wood displays his dual interest; he evaluates the titles as literature and supplies history and odd bits of information about copies and editions, and he frequently indicates rarity. Whether or not booksellers have the monumental "Catalogue of Books on Natural History," issued by the British Museum (London, 1903-15. 5 vols.), Mr. Wood's compilation should not be overlooked as an addition to a working collection of bibliographies on natural history.

For the interleaved copy.

AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY

based chiefly on the titles in the BLACKER LIBRARY OF ZOOLOGY, the Emma Shearer Wood Library of Ornithology, the Bibliotheca Osleriana [the Gest Library of Chinese Literature], and other Libraries of McGill University, Montreal, Canada. Compiled and edited by CASEY A. WOOD, M.D., LL.D., *Collaborator, Division of Birds, Smithsonian Institution.* 4to, pp. xix + 643. Col. frontispiece. Oxford University Press, London, 1931. Fifteen dollars or three guineas.

As an example of a few steps in book making during the period 1925-31 and to preserve a memorial of the work of preparing manuscript for the press and its subsequent conversion into a printed and bound book for general distribution, as well as to give an idea of how it was received by scientific men, three volumes have been evolved, as follows :-

Vol: I. Samples of the rough but corrected manuscript.

Vol: II. Corrected, revised, final proof-sheets of the whole work.

Vol: III. Correspondence, critiques, etc., relating to the work.

London, October 13th. 1931.

AN

INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY

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PUBLISHER TO THE
UNIVERSITY

BLACKER LIBRARY OF ZOOLOGY

Aquarelle attributed to Charles Collins (*ca.* A.D.1736) of the Dodo, *Raphus cucullatus*. Original drawing from the Taylor White Collection in the Blacker Library of Zoology, McGill University, Montreal, Canada.

DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY

BASED CHIEFLY ON THE TITLES IN THE

BLACKER LIBRARY OF ZOOLOGY

THE EMMA SHEARER WOOD LIBRARY OF ORNITHOLOGY
THE BIBLIOTHECA OSLERIANA
AND OTHER LIBRARIES OF

McGILL UNIVERSITY, MONTREAL

COMPILED AND EDITED
BY
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TO

MY COLLEAGUES IN THE

SMITHSONIAN INSTITUTION

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Prof. Giles [illegible] prefers the following rendering:

When birds fly, they go up;
When fishes move, they go down.
Classes of animals are alike—
With a flash, each naturally goes on
its appointed way.

This quotation is not strictly a Chinese proverb but a free translation from an ancient Chinese dictionary by Nancy Lee Swann, of the Gest Library. Prof. Giles

TELEPHONE 1092

10 SELWYN GARDENS
CAMBRIDGE

Dear Dr Wood. 3 Nov. 1931.

I have to acknowledge with thanks your wonderful work on Vertebrate Zoology, which will be a valuable addition to my library.

I regret to say that the so-called "Chinese Proverb," on p.IX, §, has been hopelessly mistranslated. The first three lines offer no difficulty to the merest tiro; but the text of the 4th line contains nothing about "spirits" or "harmony." I enclose a card with the correct rendering. With apologies.

Yours faithfully,

[Prof.] H. A. Giles

P.S. for Dr. H. A. Giles

CW/LB

BM

5 November 1931.

Professor H.A.Giles,
10 Selwyn Gardens,
Cambridge.

Dear Dr. Giles :-

Many thanks for yours of the 3rd. inst.

In view of a possible supplement to my VERTEBRATE ZOOLOGY revisions by competent authorities like yourself who most useful and welcome. I am, accordingly, filing your note for future reference, and with highest regards remain

Very sincerely yours,

الحيوان علي اربعة اقسام قسم يمشي وقسم يطير وقسم يعوم وقسم يناج
في الارض الان كل شي يطير يمشي وليس كل شي يمشي يطير

الجاحظ كتاب الحيوان

Animals are divisible into four classes, those that walk, those that fly, those that swim, and those that creep on the ground. Although every one that flies can walk, yet not every one that walks is able to fly.

AL-JĀḤIẒ. *Book of Animals.*

羣 物 魚 鳥
本 類 動 飛
相 相 而 而
應 同 下 上

When birds fly they rise;
When fishes move, they descend;
Animals of the same class are alike;
Their spirits are in harmony.

Chinese Proverb.

නිරිසනුන්ට අනුකම්පා කරනු.

'Show kindness to animals'.

The motto of the Ceylon Soc. Prev. Cruelty to Animals.

Не сули журавля въ небѣ, а дай синицу въ руки. (Русская пословица.)

Rather a titmouse in my hands than a crane flying in the air.

Russian proverb corresponding to the English
'A bird in the hand is worth two in the bush.'

言 聞 見
猿 猿 猿

Thou shalt see no evil, hear no evil, speak no evil.

Japanese proverb illustrating the attitudes of the Three Monkeys.

Ἔνια δὲ τῶν ζῴων ἐπαμφοτερίζει τὴν φύσιν τῷ τ' ἀνθρώπῳ καὶ τοῖς τετράποσιν, οἷον πίθηκοι καὶ κῆβοι καὶ κυνοκέφαλοι.

There are animals whose organization gives them a place in nature between man and the quadrupeds, for example, the apes, the long-tailed monkeys and the baboons.

ARISTOTLE. Περὶ τὰ ζῷα ἱστορίαι, II, Cap. 8.

Nocturnorum animalium, veluti felium, in tenebris fulgent radiantque oculi, ut contueri non sit; et caprae, lupoque splendent, lucemque jaculantur.

The eyes of animals that see at night, cats for example, are radiant and shining; indeed it makes one uneasy to look at them; those of the she-goat and of the wolf are also resplendent and emit light like fire.

PLINIUS SECUNDUS. Lib. XI, Cap. 55.

Il fenomeno delle migrazioni non è più il 'Mistero dei Misteri', come lo definirono parecchi Autori. Il valore delle constatazioni fatte mediante Osservatori ornitologici, numerosissimi inanellamenti ed altre indagini hanno dato allo studio delle stesse quel carattere positivamente scientifico che sempre era loro mancato. Ed ora esso è entrato nel novero dei fatti scientifici, come tanti altri è a mano che le nostre cognizioni aumentano, il lato meraviglioso del fenomeno diminuisce e scompare.

E. ARRIGONI DEGLI ODDI. *Ornitologia Italiana.* 1929.

Törékeny testében erös lélek lakott; éles elméjével oly meleg sziv párosult benne. Amelynek varázsa minden hozzá közelállót megkapott és amely fényessé teszi emlékét szivünkben és ébren tartja iránta való hálánkat.

'In his fragile body dwelt a robust soul; an acute intelligence was in him associated with a kind heart. He had a charming personality that no one who came in contact with him could resist and which while it held our reverent interest also compelled a feeling of thankfulness.'

TITUS CSÖRGEY'S *encomium of the Hungarian naturalist Isidor v. Máday zu Maros. Aquila,* 1925–6.

En Fugl i Haanden er bedre end ti paa Taget.
A bird in the hand is better than ten on the roof.
'De ere sure', sagde Ræven om Rønnebærrene (han kunde ikke naa dem).
'They are sour', said the fox of the rowan berries (he could not reach).
Den Hest, man faar foræret, ser man ikke paa Tænderne.
You do not look a gift horse in the mouth.

Danish Proverbs.

Alla kattor äro svarta i mörkret.
In the darkness all cats are black.
En svala gör ingen sommar.
One swallow does not make a summer.

Swedish Proverbs.

Während der Dauer eines jeden organisirten Körpers, sey sie lang oder kurz, sind zwey Hauptzeitpunkte bemerkbar: Der Anfang des Lebens, sein Entstehen und die Vollendung desselben, sein Tod. Die tausendjährige Eiche und der zweytägige Schimmel, der Mensch, welcher hundert Jahr alt wird, und das Uferaas, das keinen Tag überlebet, alle organisirten Körper haben diese Gränzen ihrer Wirksamkeit gemein; sie entstehen und—sterben.

J. M. BECHSTEIN. 1801.

L'histoire naturelle, prise dans toute son étendue, est une histoire immense; elle embrasse tous les objets que nous présente l'univers. Cette multitude prodigieuse de quadrupèdes, d'oiseaux, de poissons, d'insectes, de plantes, de minéraux, etc., offre à la curiosité de l'esprit humain un vaste spectacle, dont l'ensemble est si grand, qu'il paraît, et qu'il est en effet inexplicable dans les détails.

Œuvres de Buffon. Premier Discours.

Elk vogeltje zingt, zooals het gebekt is.

Dutch proverb.

Forçado pela escacez de recursos pecuniarios a reduzir a sua comitiva a menos do que exigem as necessidades da exploração e a segurança do explorador, quasi só e mal armado, ainda assim não hesitou um instante em affrontar os maiores perigos para ir devassar os inhospitos sertões da nossa Africa occidental. Senão é virtuosa abnegação este desprendimento de todos os interesses a que o commum dos homens costumam prestar fervoroso culto, se não é coragem esta fortaleza de animo com que a todo o momento se malbarateia a vida, se não é heroismo este sacrificio absoluto de si mesmo aos progressos da sciencia; n'esse caso deverão supprimir-se taes palavras por inuteis do nosso vocabulario.

In appreciation of the services of a colleague. J. V. BARBÖZA DU BOCAGE. Lisboa, 1870.

A good dog is one of the most faithful, respectful, affectionate and sensible of brutes . . . a pleasant companion, who knows almost everything except how to talk, who converses with his eyes and ears and tail, shares comforts and discomforts with equal alacrity, and occasionally makes himself useful.

ELLIOTT COUES. *Key to North American Birds.*

If stationary men would pay some attention to the districts in which they reside, and would publish their thoughts respecting the objects that surround them, from such materials might be drawn the most complete county histories.

GILBERT WHITE. *Natural History of Selborne.* 1789.

Además su estudio es digno de atraer toda atención, pues particularmente en la naturaleza es donde se encuentran los maravillosos fenómenos que elevan al hombre á altas contemplaciones, y le hacen distinguir y apreciar las sublimes armonías que tan elocuentemente manifiestan la sabiduría divina: por otra parte, como ramo de instrucción, no merece menos la protección de los gobiernos y universidades, pues no hay duda que es la ciencia mas atractiva y la mas metódica, y por consiguiente la mejor para desarrollar en los jóvenes discípulos el gusto del trabajo y de la observación, inculcándoles un espíritu de órden y claridad que favorece singularmente las operaciones de la inteligencia.

CLAUDIO GAY. *Historia física de Chile.* 1847.

PREFACE

AFTER nearly six years of effort on the part of the Officials of the Libraries and Zoological Departments of McGill University the Compiler and Editor of the present treatise has finally prepared for the press a volume that is intended to assist students of vertebrate zoology and its bibliography, as well as University and other librarians, in securing a fair knowledge of an important branch of natural science. Although the parties to the present compilation are not altogether satisfied with the work—which is necessarily an incomplete presentation of the subject—it is hoped that it may serve as a sort of stopgap until other hands have written and published a complete study and evaluation of all vertebrate literature—a consummation devoutly to be wished.

As will be seen from the Table of Contents the present compilation is divided into three distinct and yet closely related sections.

Section A reviews the literature of vertebrate zoology, so far as it is represented in McGill libraries, from the earliest times to the year 1930.

Section B furnishes a convenient, short-title index of the same literature (including a few serials and periodicals), arranged geographically and in chronologic order, so that the student or librarian may recognize and locate in a few minutes any ordinary treatise or periodical and many of the rare titles of zoological importance. Suppose, for example, that the book desired be a recent work on the vertebrate animals of Southern Mexico. The major headings, *General Works*, *Middle America*, are soon found and casting one's eye towards the end of the list the date and name '1908. Gadow, Hans' are at once perceived. Further information about the book, its whereabouts, &c., are easily obtained by consulting the appended Catalogue or the Catalogue of the British Museum (Nat. Hist.).

Section C, the largest of the three, is the (partially) annotated Catalogue of the printed books, periodicals, independent tractates, original drawings, manuscripts, &c. in the Blacker and other zoological collections of McGill, to which have been added a few titles of importance 'on order' but not yet acquired at the date of going to press. These constant acquisitions also embrace many titles not referred to in this treatise.

It will from the foregoing description be evident that the schemata of the present volume involve—indeed adopt—the principle of repetition; in the text to follow the Compiler occasionally (and deliberately) repeats not only the name of an author but the titles of his writings and even an account of his career when and where he thinks it desirable to fix important facts in the mind of the student.

The main sources of the information to be found in this volume are (first and foremost) the Blacker Library of Zoology, the Emma Shearer Wood Library of Ornithology, the Osler Library of the History of Medicine, the Gest Library of Chinese Literature, and the general library of the University.

The Blacker Library of Zoology was founded in 1920 and, later, handsomely endowed through the munificence of Mr. Robert Roe Blacker and his wife Nellie Canfield Blacker of Pasadena, California.

Mr. Blacker was born in Brantford, Ontario, Canada, and in 1867 migrated to Manistee, Michigan, to engage in the lumber business. There he married, and in 1912 retired from business to settle in Pasadena where he and Mrs. Blacker have continued to reside. These two widely known and highly respected citizens have for many years been engaged in various philanthropic works. They have shown themselves to be good friends of scientific research, especially in generous donations to McGill University and to the California Institute of Technology. Living

in the neighbourhood of the latter school of learning they have been closely identified with its many activities and have given much of their time, energy, and wealth to forwarding its usefulness and prosperity. In recognition of Mr. Blacker's material and personal aid in the advancement of science McGill University offered him the honorary degree of LL.D., but, unfortunately, the degree is never conferred *in absentia*, and ill health prevented his attendance upon Convocation.

About two-thirds of the titles listed in the appended Catalogue are shelved in the stacks of the Blacker Library, and it now ranks among the large collections of zoological literature in America. The endowment furnished by the donors is sufficient for the continuation of the many zoological serials and periodicals now in progress and for the yearly addition of the most important new publications on vertebrate zoology. A more detailed account of rarities, such as original drawings, and other unique periodical series, not to mention scarce and fundamental treatises (of which this library has a goodly share) will be found in the various chapters of the present volume.

The aim of the founders of the Blacker Library is to furnish a supply of literary material that will meet the varied wants of a University in which not only the student body, but research scholars, librarians, and the public generally may consult quickly nearly every work on zoology likely to interest them.

The Emma Shearer Wood Library of Ornithology, begun several years prior to the installation of the Blacker collections, forms a sort of supplement to the latter. It was founded in the name of a lady who, although (through her husband) an American citizen, was born in Montreal. As the Shearer family of Montreal has always been closely identified with the life of McGill, it seemed appropriate that this collection should form part of the University library.

The E.S.W. Library was originally intended to furnish as nearly as possible complete sets of periodicals and serials devoted to bird-life, many of which, as is well known to collectors, are out of print and have always been difficult to acquire. Consequently it happens that the library is particularly rich in these fundamentals, so necessary to research in ornithology. In addition, the collections show the usual (and many unusual) titles directly or indirectly bearing on the avifauna of the world in all the scientific and in several other languages. Arrangements for the acquisition of serial and periodical continuations have been made, as well as provision for the purchase of desirable treatises as they appear on the market.

Both the Blacker and E.S.W. Libraries are under the special care of Miss Elizabeth Abbott, a trained librarian working under the advice and guidance of the general director, Dr. Gerhard Lomer.

The following account of the Osler Library was written for the London *Times* by Dr. Charles Singer, a former associate of Sir William Osler in Oxford University. As the famous donor of the collection was born in Canada and once held the chair of Physiology in McGill it was an appropriate gift to that University: 'Sir William Osler was all his life a book collector. During his later years much of his best energies were given to a favourite scheme for the formation of a library illustrating the history of medicine. It was always his intention that this should be presented to his *alma mater*, McGill University, Montreal. There his books have now been conveyed and his library has recently been opened to the learned public. Osler's scheme centred round what he called the "Bibliotheca prima". This was to include all the works of first class and historical importance in the advancement of medicine and the allied sciences. Under this heading he included about a hundred names. They were to be represented in each case by the first edition and by the most important subsequent editions, together with works illustrative of their history and reception. Grouped round the "Bibliotheca prima" was a "Bibliotheca

secunda" and other bibliothecae classed as "Litteraria", "Historia", "Biographica", "Bibliographica", besides special collections of manuscripts and of fifteenth-century books.

'The library is not a very large one—the editors distinguish under 8,000 items—but it is undoubtedly put together with very fine and individual judgement, and forms the true reflex of its collector. There are a few obvious gaps which Osler would certainly have filled had his life been prolonged for even a few months. The pious feelings of the editors have, however, preserved the library as near as possible in the form in which he left it. The library contains about 126 books printed in the fifteenth century, many of great rarity. The manuscripts include a number of documents relating to Osler's own career and a group of ~~oriental~~ Chinese medical manuscripts [and printed books] presented to the library by Dr. Casey A. Wood. The preparation of this very full catalogue has occupied a large part of the time of the editors for some ten years. Apart from its other interests, the extreme patience and accuracy with which the book has been prepared render it a most valuable and, indeed, indispensable bibliographical reference work. The three editors, Dr. W. W. Francis, now Librarian of the Osler Library at Montreal, Mr. R. H. Hill, of the Bodleian Library, and Dr. Archibald Malloch, Librarian of the New York Academy of Medicine, have performed their task with great skill and discretion. Their constant aim of fulfilling the wishes of Osler with exactness and completeness has, we believe, been attained.'

The Gest Chinese Research Library furnishes a number of oriental works on zoology kindly described elsewhere by the librarian in charge, Dr. Robert de Résillac-Roese. As this famous collection deserves a somewhat extended notice the Compiler quotes from an account of it given by Professor Berthold Laufer:

'Next in number of volumes to the Chinese Division of the Library of Congress the important collection of Chinese literature made by Mr. Guion M. Gest of New York [now one of the special libraries of McGill University] is the most outstanding and most comprehensive and at the same time outranks others in number of rare works in America. It is justly characterized as a research library, as it enables the student to carry on serious and fruitful investigations in almost any department of Chinese civilization as history, literature, religion, and science.

'The object of the Gest Library is to place its books at the disposal of scholars for research-work, especially in co-operation with the faculties of McGill and other universities, as well as with sinologists in the United States, Europe, China, and Japan. Research-work of this character has already been done in medicine, pharmacology, astronomy, &c. A plan is on foot to found a chair for Chinese language and literature at McGill, which was chosen by Mr. Guion M. Gest because of the excellent and profound research-work accomplished in the different faculties and departments of this university.

'The Gest collection is housed in the attractive library building of McGill University, where it occupies a large room on the second floor. The stacks are of steel, arranged in two stories, the upper one being entirely devoted to the great cyclopedia *T'u shu tsi ch'eng*. The arrangement of the books is so systematic and splendid that any book can be traced at a moment's notice. The reading-room is airy and spacious and well equipped.

'The staff of the Gest Library is formed by Dr. Gerhard R. Lomer, University Librarian, and Dr. Robert de Résillac-Roese, who has immediate charge of the cataloguing and pursues his task with a rare zeal and enthusiasm. He is assisted in his work by Miss Swann, a good Chinese scholar, and by a scholar of Chinese nationality, who at present is Mr. Kwei. The library's collaborator in China is Mr. I. V. Gillis who resides in Peking and who has extraordinary ability as a book-hunter. He was formerly naval attaché to the U.S. Legation of Peking.

'The Gest Library was informally opened in 1926 on the day of Chinese New Year, February 13th, with an asset of 304 large works consisting of 10,750 volumes. These had been selected by

Mr. Ch'ên-Pao-Ch'ên, noted statesman and scholar, tutor of the last Manchu emperor, Hsuan Tung (1908–11). By June 30th, 1929, the collection had increased to a total of 2,054 titles consisting of 50,640 volumes.[1] All these works have been identified, catalogued, doubly card-indexed, labelled, and placed on the shelves in their proper classification sequence. They are all bound in Chinese cases (*t'ao*). For these 2,054 works 38 catalogues have been typewritten in triplicate and, correspondingly, two sets of index cards, namely: title cards, 4,500; authors' cards, 4,170; Total 8,670 cards. Aside from these 50,640 volumes there are 6,000 not yet identified. Another consignment of 5,305 volumes arrived on July 13th of this year at Vancouver, and approximately 15,000 volumes from a famous private library in China are expected the latter part of this summer. Valuable works will be continually added. Beginning from Cat. No. 305 all works were selected by Mr. I. V. Gillis. Excepting a few modern works bought from Peking and Shanghai bookstores, all the works in the collection were formerly in the possession of Manchu princes, well-known statesmen, or bibliophiles.

All books are bound in Chinese style, i.e., cloth cases held together by bone slips (*ku tsien*).'

The general library of the University was originally founded by and named after the Hon. Peter Redpath, who also erected the main building that houses most of its 250,000 volumes. Although no particular effort was made during the last hundred years to acquire books on natural history the present Catalogue lists quite a few important works on vertebrate zoology acquired by the Redpath Library during that period. Among them is an original subscription copy of Audubon's magnificent *Birds of America*, elephant folio; rare, early French and British voyages of zoological interest; presentation copies of natural history books to Sir William Dawson, the celebrated Chancellor of the University; a complete set of British Museum publications, and so on. Recently the University purchased the library and museum of the defunct Montreal Natural History Society and with it many volumes of scientific periodicals and other works that filled serious gaps in its shelves. Under the fostering care of Dr. Gerhard Lomer, the energetic University Librarian, this department of the McGill equipment has made rapid progress in all directions.

The McGill libraries, especially the Oslerian and Medical sections, have a representative collection of works on the extremely interesting and professionally valuable study of comparative pathology, including textbooks and other treatises on veterinary medicine and surgery. However, the Compiler does not consider it wise to do more than mention this fact here. The literature of animal diseases, their diagnosis and treatment, apart from a few exceptions listed in the appended Catalogue he, for particular reasons, regards as foreign to the purposes of this Introduction and so refers special students to the card indices of the sectional libraries mentioned.

Attention may be drawn also to the Lyman Library and Museum of Entomology, a valuable research collection of treatises and periodicals and specimens founded and endowed half a century ago by Henry Herbert Lyman (1854–1914), a McGill Governor. The Museum was formally opened in 1882 and the Library in 1893. There are over 1,500 bound volumes in the collection (that represent the most important works on Entomology) and thousands of unbound periodicals and tracts, mostly listed in an easily accessible card catalogue. The very efficient Librarian is Mr. Albert F. Winn.

Quite a few titles in the Lyman Library include substantial references to vertebrate zoology and are, in consequence, included in the appended Catalogue. This collection, together with many titles on invertebrates in the Blacker Library, completes the array of faunal literature and ounds out the whole series of biological material necessary to the literary life of the University.

[1] Greatly increased since that date.—Compiler.

The reader is warned in advance that this work makes no claim to the (as yet) unfilled position of a *complete study* in English of the literature of vertebrate zoology any more than the Catalogue that follows constitutes a fully annotated list of that literature. The Compiler does, however, hope that the McGill libraries have gathered a sufficient number of biologic items to justify the present publication as a basis for an elementary thesis on the literature of vertebrate zoology.

A complete annotated account of the literature of biology might possibly be published in twenty or thirty folio volumes if carried out with the meticulous care and marvellous patience that characterize, for instance, that remarkable production, Bashford Dean's *Catalogue of Fishes*, in which not only every monograph but every published contribution to the end of 1923 from every known source (periodicals included) is listed and evaluated by the author and his associates. As part of such a herculean task there might be published a like evaluation of the literature of ornithology (already partially accomplished in Zimmer's annotated Catalogue of the Ayer Library), of mammalogy and eventually of herpetology and amphibiology. Meantime the present writer offers his Introduction and partially annotated Catalogue as a contribution to a study of the whole subject of vertebrate zoology.

Shortly after the beginning of the present task the Compiler began to see as through a glass darkly what Osler perceived at once, viz. that some sort of Index would be necessary in an annotated catalogue of the type he proposed. 'The task' (of making the *Bibliotheca Osleriana*), he said, 'is perhaps too heavy for one man to undertake; but I am assured by experts that there is no inherent difficulty in such a catalogue provided there is a good index.' Later his literary executors reported that one of the rules laid down by Sir William Osler was that cross-references, except in the index, should be reduced to a minimum. When his scheme was criticized, and manifest objections were raised . . . he had a ready if hyperbolic answer, 'We'll print in large letters at the top of each page, CONSULT THE INDEX FIRST'.

Since in the Compiler's case an index might be useful to alleviate or even neutralize some of the bibliographic offences of which he has been guilty in the present undertaking he has devised a *student's and librarian's geographic and author key* (Part B) to the chief works on vertebrate zoology from the earliest times to the present. With this Index, arranged in geographic and chronologic order, it is hoped that it will be useful to and find favor in the eyes of those whom it is especially intended to serve—enabling them to find in a few minutes the chief authorities on any subject covered by the agenda of this volume.

No student of zoological literature can be said to have had a liberal education who is not to some extent familiar with the bibliography not only of natural science, but of bookmaking in general.

Assuming that the Compiler's experience may serve as some sort of guide to this knowledge the following short titles (all in the McGill libraries) are given as among his chief sources of information in the preparation of the present volume: *Bibliotheca Osleriana*, Oxford, 1929; Bashford Dean, *Bibliography of Fishes*, 1895–1923; J. B. Spix, *Geschichte aller Systeme in der Zoologie*, &c., 1811; J. T. Zimmer, *Catalogue of the Ayer Library*, 1926; Eric Nordenskiöld, *History of Biology*, 1929; Ernest Hirsch-Schweigger, *Zoologisches Wörterbuch*, Berlin, 1925; L. Camerano, *Materiali per lo studio di Zoologia in Italia nella prima metà del secolo XIX*; L. von Graff, *Die Zoologie seit Darwin*, 1896; Victor Carus, *Geschichte der Zoologie*, 1872, and its Translation, *Histoire de Zoologie*, by Prof. Schneider; C. G. A. Giebel, *Thesaurus Ornithologiae*, 3 vols., 1872–7; C. D. Sherborn, *Index Animalium*, Lond., 1902; D. H. M'Nicoll, *Dictionary of Natural History Terms*, 1863; Alfred Newton, *Dictionary of Birds*, 1893–6; Elliott Coues, *Key to North American Birds*, 1925; W. A. Locy, *History of Biology*; Max Meisel, *A Bibliography of American Natural History*, 1924; *A List of Biographies on Special Subjects in the Crerar Library*,

Chicago, 1902; H. C. Bolton, *Catalogue of Scientific and Technical Periodicals, 1665–1895*, 2nd edition, 1897; and as a supplement: Wm. J. Fox, *American Journals omitted from Bolton's Catalogue*. Of great value has been Joseph Grinnell's recent contributions to the bibliography of Pacific coast avifauna, noted in the present Catalogue.

As a general proposition, also, the Compiler agrees with the list given by J. S. Kingsley (*Naturalist's Assistant*, 1882) of 1,500 titles necessary for the Systematic Zoologist; Mullens and Swann, *Bibliography of British Ornithology*, Lond., 1917; R. Friedländer, *Naturae Novitates*, 1879–1930; British Museum, *Catalogue of the Books, Manuscripts, Maps and Drawings in the British Museum (Natural History)*, Lond., 1903 et seq.; British Museum, *Catalogue of the Printed Books in the Library of the British Museum*, Lond., 1881–1900, 75 vols., and Supp. 11 vols.; F. L. Burns, *Bibliography of scarce or out of print North American amateur and trade periodicals devoted to Ornithology*, 1915; Wilhelm Engelmann, *Bibliotheca historico-naturalis. Verzeichnis der Bücher über Naturgeschichte welche in den Jahren 1700–1846 erschienen sind (Index librorum historiam naturalem . . .)*, Lpz., 1846, Bd. 1. 8+786 pp., 8vo; continued as: *Bibliotheca historico-naturalis . . . Supplement-Band, enthaltend die in den periodischen Werken aufgenommenen und die vom Jahre 1846–1860 erschienenen Schriften (Bibliotheca zoologica . . . bearbeitet* von J. V. Carus . . . und W. Engelmann), Lpz., 1861, 2 Bd., 8vo; S. H. Scudder, *Catalogue of Scientific Serials . . . 1633–1876*. Camb., Mass., 1879 (Harvard University—*Library*. Special publications, 1); H. O. Severance, *Guide to the Current Periodicals and Serials of the U.S. and Canada*, 4th ed., Ann Arbor, 1920; *Societatum litterae, Verzeichnis . . . auf dem Gebiete der Naturwissenschaften* . . . Hrsg. von E. Huth (and afterwards A. Hering and M. Klittke), Berlin, 1888–1900; Wiegmann's *Archiv für Naturgeschichte, Zoologie*, Berlin; *Zoologica*, Hrsg. von R. G. F. R. Leuckart und C. Chun; Zoological Society of London, *Catalogue of the library*; *Zoological Record* to date; G. R. Lomer and M. S. Mackay, *Catalogue of Scientific periodicals in Canadian libraries*, 1924; J. Dryander's *Catalogue of the Banksian Library*, 5 vols.; *Union List of Serials*, 1927; and the *U.S. Catalog of Books*, 1929.

The *Encyclopaedia Britannica*, *International Encyclopaedia*, *Chambers's Encyclopaedia*, the recent *Encyclopedia Italiana* and similar treatises contain many valuable monographs on the various sections and subsections of vertebrate zoology.

Although somewhat out of date a useful work of reference is Nemnich's *Polyglotten-Lexicon der Naturgeschichte*, 3 vols., 1793.

It is not necessary to list here all the standard works of general reference, including those that deal especially with incunabula and other early printed books, but the well-known Catalogues of Hain, Pollock, Pellechet, Brunet and others of similar character (to be found in every properly equipped research library) should, like the foregoing titles, be at hand for consultation.

As a preliminary study of this subject there is no monograph in English that covers the ground in a more interesting fashion than Geo. Haven Putnam's *Books and their Makers during the Middle Ages*, 2 vols., 2nd ed., N.Y. (1896). This monograph gives an illuminating account of the subject from the fifth to the beginning of the eighteenth century and should be read by every student of that important era in book-making.

Studies in the History of Medieval Science, by Charles Homer Haskins, 2nd ed., Cambridge, 1927, is another volume that the student will find interesting and valuable.

In Ronald B. McKerrow's *An Introduction to Bibliography*, Oxford, 1927, the student will also find a practical manual containing much information—presented in an easy and attractive style—not to be found in most books of the kind. The appendix with, among other practical heads, a 'short list of (translated) difficult place names' is worth the price of the book.

It will be of signal advantage to the student of zoological literature if he becomes acquainted

with the 'sales catalogues' issued from time to time by the larger dealers in scientific works. Among these may be mentioned the publications of Bernard Quaritch, and Maggs Bros., London; Friedländer und Sohn, Berlin; L'Art Ancien, Zurich; and of Taeuber und Weil, Munich. In many of these catalogues will be found useful bibliographical notes.

The Compiler is greatly indebted to many friends for assistance in preparing this volume. First of all he wishes to thank the Librarian of McGill University, Dr. Gerhard Lomer, and his heads of Library departments for their valuable help. In the re-arrangement of the journals in the E.S.W. Library of Ornithology that task had the benefit of Miss Margaret S. Mackay's unusual acquaintance with natural history periodicals. Without the co-operation of these trained experts, the present task could not have been completed.

Professor Arthur Willey, Director of the Department of Zoology in McGill, has most kindly written the notes of many non-English titles of zoological works in the libraries, while Mr. Henry Mousley has evaluated a large proportion of the treatises printed in English. For the remaining notes the Compiler is responsible.

The Authorities of the British Museum (Natural History Department), especially the Keeper, very generously assigned a room and equipment to the Compiler and his secretary for two years' work on the Introduction, Index, and Catalogue. In addition, the Compiler is especially indebted to the Librarian of the Zoological Department, Mr. Basil H. Soulsby, and his successor, Mr. Cockburn Townsend, while their assistant, Mr. H. W. England, very kindly and helpfully placed the resources of the invaluable natural history collections at the Compiler's disposal.

Dr. C. Davies Sherborn (Natural History Museum) and Professor Ramsay Wright, formerly of Toronto University, now of Oxford, have both been very helpful.

Dr. Ernest Hartert and the library of Lord Rothschild's hospitable Museum at Tring have also furnished valuable aid.

For advice and help in the present undertaking the Compiler is indebted to several of his associates in the Smithsonian Institution, in particular to Dr. Chas. W. Richmond and Dr. Alexander Wetmore, the Assistant Secretary.

In the important matter of proof-reading Miss Lilian Bates, the Compiler's Secretary, has been of great assistance.

The orthography of these volumes is that adopted by the *Oxford English Dictionary* in which both the so-called American and British styles are given.

AN

INTRODUCTION TO THE LITERATURE

OF

VERTEBRATE ZOOLOGY

CHAPTER I

THE BEGINNINGS OF ZOOLOGICAL RECORDS — EARLY GREEK, ROMAN AND ORIENTAL ZOOLOGISTS — THE EARLIEST MEDIEVAL WRITERS ON VERTEBRATE ZOOLOGY.

Aristotle—Caius Plinius Secundus—Dioscorides—Aelian—Oppian—Constantinus Africanus—Titus Lucretius Carus—The Phisiologus—The Dialogus Creaturarum—The Early Moslem Naturalists—Mesue—Averröes—El Kasvini—Abdallatif—Abou el Deschahif—El Damiri—The Nuzhat-Nama—Avicenna—Early Chinese Writings on Natural History—Rabanus Maurus.

SEVERAL thousand years before the Christian era frescoes and rock-cut pictures of animals were produced by primitive artists. One of these, taken from an ancient tomb at Maydum in Egypt, presents with great fidelity a flock of geese. The Compiler of this Introduction has seen in several Egyptian temples, monuments, and tombs similar animal portraits that vie in beauty of portraiture with modern pictures. Assyrian monuments also show animal portraits, though they are not, as a rule, so well executed.

Numerous Glacial Period paintings of birds on the walls of caves in France and Spain—12 species have been recognized in a single cave near Cadiz—were recently discovered.

Of authors the first serious writer on zoology whose works have survived is Aristotle. This remarkable philosopher and famous naturalist was born at Stagira, 384 B.C., son of the physician to and friend of the King of Macedon, grandfather of Alexander the Great. At the age of 18 he left Stagira, went to Athens and became a pupil of Plato, with whom he resided until the death of the latter 20 years afterwards. He subsequently retired to Lesbos, where he married the daughter of an old pupil —the ruler of that State. In 342 B.C. he became, at the invitation of Philip of Macedon, instructor of his son Alexander. In 334 B.C. Aristotle went to Athens and there opened a school—the celebrated Lyceum. His followers were known as *Peripatetics* and the sect has survived under various names until the present day. The books that have escaped the ravages of time and the neglect of man are only a fraction of this great naturalist-philosopher's output; it is unlikely that we shall recover the *Ζωικά* and the *Ἀνατομικά* in which he probably described more fully the animals with which he seems to have been acquainted, but we do know that this famous writer of the early Greek period greatly influenced scientific thought throughout the Middle Ages and even the philosophy of our own times.

Sundevall estimates that this versatile ob-

server described more or less fully 70 mammals, 150 birds, 20 reptiles, 116 fishes, 60 insects and arachnids, 24 crustaceans and annelids, and about 40 molluscs and radiates.

Aristotle made a rough classification of his birds into eight principal categories, his follower, Pliny the Elder, relying entirely upon characters taken from the feet, divided them into three. The McGill libraries are fortunate in the possession of over 20 editions of Aristotle and an early fourteenth-century manuscript of his zoological treatises.

Three centuries were to elapse before the second outstanding figure in zoological literature appeared—Caius Plinius Secundus (A.D. 23–79), known as the Elder, or the Naturalist.

He was the author of numerous works, social, political, and philosophic, among them a *Historia naturalis* in 37 books, most of Liber X being devoted to birds. Perhaps the best translation of this famous treatise is the French work by Littré. Pliny acknowledges his indebtedness to Aristotle but, so far as we know, he made many additions to and improvements upon the works of his great predecessor.

Plinius Secundus was born at Como in North Italy, and when 23 years of age entered the Army in North Germany, and during his service wrote several military treatises. During this period he travelled about the Empire making notes and observations which he subsequently utilized in his various writings. He numbered the Emperor Vespasian among his intimates, but his social diversions do not seem to have interfered with his studies or his devotion to literature. Altogether he produced 160 volumes of manuscript which he left to his nephew. Unfortunately most of his works have been lost, but for us, *fortunately*, the *Historia naturalis* has survived. The author died in A.D. 79, killed by noxious fumes given off by an eruption of Vesuvius that, escaping into the Bay of Naples, overcame the naturalist while he was commander of the Roman fleet at that station.

An excellent review of the Birds of Pliny and Aristotle will be found in Evans's edition, with notes, of Turner's Birds. Including the first (1469) printed edition the McGill libraries possess more than 30 printings of Pliny's *Historia naturalis*.

Another century passed before we find a third ancient authority of special prominence, viz. the 'Sophist', Claudius Aelianus, born *ca.* A.D. 220 at Praeneste. Although an Italian, Aelian's works were written in Greek. He added very little to our knowledge of ancient zoology, although he refers to the writings of several other naturalists (whose works have not survived) showing that the study of animal life in the early centuries of our era had its share of devotees.

In his description of animals whose parts were used as remedies Pedacius (Pedanius) Dioscorides (1st cent.), a Greek physician, born in Anazarba, Cilicia, gives an account of many faunal forms in his celebrated six books of the *Materia medica* (*editio princeps*, A. P. Manutius, 1499, in the Osler Library), some editions of which furnish a complete catalogue of the vertebrates, as known in his time.

Constantinus Africanus, who died in A.D. 1087, was the author of ΖΩΟΤΡΟΦΕΙΟΝ or *Leporarium*, in which many animals are described. In this treatise numerous quotations from Oppian and other writers are given, but a few original observations are also recorded. A McGill library has the 1560 edition of Constantine the African.

Titus Lucretius Carus, a Roman poet who lived in the first half of the first century B.C. wrote a hexameter poem (*De Natura Rerum*) in six books in which he endeavoured to penetrate the mysteries of 'things as they really are'. In it he refers to animal life and indicates a knowledge of the fauna of his day. The McGill libraries, especially the Osler and Blacker collections, have fourteen editions of this remarkable work. The Bibliotheca Osleriana possesses the rare Venetian impression of 1495.

Oppian (2nd cent.) has also written at least one natural history monograph, a poem in the guise of a treatise on fishing and hunting. The first edition appeared in 1478, the second

in 1508. Both are extremely rare. A good edition is the Greek text (printed with a Latin translation and voluminous notes) by J. N. B. de Ballu, folio, Argentorati, 1786. The Latin title reads, *Oppiani Poemata de venatione et piscatione*. Among the several printings in the various libraries of McGill is a good (Italian) rendering, by Salvini, in the Blacker Library.

Ray Lankester points out the childish delight and wonder with which the people of early civilizations gathered and treasured stories of strange animals from distant lands, and instances among these fables the *Physiologus*, the best known of the early medieval Bestiaries (treatises on animals to whom moral traits are ascribed) as examples of this primitive credulity.

Certain Christian teachers took an interest in natural history, partly because of passages in Holy Writ that they wished to explain and partly on account of the supposed divine revelations in the book of nature of which it is man's duty to take proper advantage. But the early Christian writers were far removed from scientific methods, and instead of consulting Aristotle and other observant naturalists they quoted Aelian and similar works of the imagination in which scraps of folk-lore, travellers' tales, and fragments of misapprehended science were set forth in what was regarded as an elegant and authoritative style.

They took these fairy tales of the 'naturalist' for gospel truth and tried to make the best of them for religious instruction.

Several of the Fathers—Clement, for example—followed this plan, and wrote a curious mixture of zoological descriptive matter and theological sermonizing. They told of beasts and birds that had no existence as a basis for churchly teachings of about the same scientific standing and value.

Among the many known editions of the *Phisiologus* is a metrical codex of 12 chapters by Bishop Theobald, from A.D. 1022 to 1035 Abbot of Monte Cassino, Italy. This variant has been copied and printed and reprinted many times since the first manuscript appeared. A very good, annotated, and illustrated English translation of the Cologne, 1492, edition is by A. W. Rendell, London, 1928. The characters, physical, moral, and mental, of twelve birds and beasts reviewed from the medieval standpoint are quaintly developed in this curious work, one of the most popular animal folk-lore works of the Middle Ages. The numerous printings of the *Phisiologus*, including one in old-English, are fully listed by Choulant (*Handbuch der Bücherkunde für die ältere Medizin*, Leipzig, 1841).

The mythical *Ant-lion* furnishes a fair example of the zoology of the *Physiologus*. Of course this beast is not the insect we know, but 'his father hath the shape of a lion, his mother that of an ant; the father liveth upon flesh, and the mother upon herbs. And these bring forth the ant-lion, a compound of both, and in part like to either; for his forepart is that of a lion, and his hindpart like that of an ant. Being thus composed he is neither able to eat flesh like his father nor herbs like his mother; therefore he perisheth from inanition'. This description is then followed by an ingeniously constructed moral.

The *Physiologus* (or *Phisiologus*) was not only popular but appealed to the imagination of the multitude long after it ceased to have the support of the Church as a respectable work of piety. It also furnished material for artists and architects engaged upon cathedrals and other ecclesiastical buildings, especially in gargoyles and for ornamentation of the walls and furniture.

The chief emblems of the original *Physiologus* were as follows: '(1) the *lion* (footprints rubbed out with his tail; cubs first receive life three days after birth by their father's breath); (2) the *sun-lizard* (restores its sight by looking at the sun); (3) the *charadrius* (presages death or recovery of patients); (4) the *pelican* (recalls its young to life with its own blood); (5) the *owl* (or nykticorax, loves darkness and solitude); (6) the *eagle* (renews its youth by sunlight and bathing in a fountain); (7) the

phoenix (revives from fire); (8) the *hoopoe* (redeems its parents from the ills of old age); (9) the *wild ass* (suffers no male but itself); (10) the *viper* (born at the cost of both its parents' death); (11) the *serpent* (sheds its skin; puts aside its venom before drinking; is afraid of man in a state of nudity; hides its head and abandons the rest of its body); (12) the *ant* (orderly and laborious; prevents stored grain from germinating; distinguishes wheat from barley on the stalk); (13) the *sirens* and *onocentaurs* (compound creatures; see Isaiah xiii. 21, 22); (14) the *hedgehog* (pricks grapes upon its quills); (15) the *fox* (catches birds by simulating death); (16) the *panther* (spotted skin; enmity to the dragon; sleeps for three days after a meal; allures its prey by sweet odours); (17) the *sea-tortoise* (or aspidochelone; mistaken by sailors for an island); (18) the *partridge* (hatches eggs of other birds); (19) the *vulture* (assisted at birth by a stone with loose kernel); (20) the *ant-lion* (likely to perish of hunger because it cannot subsist on either vegetable or animal diet alone); (22) the *unicorn* (caught only by a virgin); the *hyena* (a hermaphrodite); (25) the *otter* (enhydris; enters the crocodile's mouth to kill it); (26) the *ichneumon* (covers itself with mud and so lies in wait to kill the dragon —a version of No. 25); (27) the *crow* (takes but one consort during life); (28) the *turtle-dove* (same nature as No. 27); (29) the *frog* (either living on land, when it may be killed by rain, or in the water without ever seeing the sun); (30) the *stag* (destroys its enemy the serpent); (31) the *salamander* (quenches fire); (32) the *diamond* (powerful against all danger); (33) the *swallow* (brings forth but once, a misreading of Aristotle, *Historia animalium*, vol. 13); (34) the tree called *peridexion* (protects pigeons from the serpent by its shadow); (35) the *pigeons* (of several colours but led by one of a purple or gold colour); (36) the *antelope* (or hydrippus; caught by his horns in the thicket); (37) the *fire-flints* (of 2 sexes that combine to produce fire); (38) the *magnet* (that adheres to iron); (39) the *saw-fish* (sails in company of ships); (40) the *ibis* (fishes only along the shore); (41) the *ibex* (descries the hunter from afar); (42) the *carbuncle* (called 'the diamond again', found only by night); (43) the *elephant* (conceives after partaking of mandrake; brings forth in the water; the young protected from the serpent by the father; when fallen is lifted up only by a certain small individual of its own kind); (44) the *agate* (employed in pearl fishing); (45) the *wild ass and ape* (mark the equinox); (46) the *Indian stone* (relieves patients of the dropsy); (47) the *heron* (touches no dead body, and keeps to one dwelling-place); (48) the *sycamore* (the wild fig; grubs living inside the fruit and coming out); (49) the *ostrich* (devours all sorts of things; forgetful of its own eggs). Besides these, other and later versions contain sections of unknown origin about the *bee*, the *stork*, the *tiger*, the *woodpecker*, the *spider*, and the *wild boar*.'

Another form of the *Phisiologus* was the *Dialogus creaturarum*. A modern edition of that ancient folk-lore dialogue—in which several birds take part—was published in Munich, 1923, under the title *Die Zweisprach der Tiere*, 78 pages, illustrated by 38 woodcuts. These fables, by an unknown author, have been frequently copied, the first printed edition being published by Peter van Leu at Houda, Holland, in 1480. The present volume is number 27 of a 550 limited printing, translated from Latin into German, with the woodcuts of the early Dutch edition. There are many dialogues in which various animals take part, thus illustrating their habits and establishing their identity.

However ridiculous their writings now seem, early observers and writers were the founders of zoological science, so that all through the succeeding centuries—including our own times—the naturalist-explorer and the author worked hand in hand and played an important role in the progress of zoology.

As will be seen by the numerous early works (that include zoological treaties) in the *Bibliotheca Osleriana* lower-animal life and human structures were, in the medieval mind, closely

related. Indeed we largely owe the important province of modern comparative anatomy, physiology, and psychology to the fact that in the Middle Ages parts of animals as well as of plants were regarded as 'simples', to be employed in medicine just like any other remedy.

In discussing the therapeutic merits of animal products the animals themselves were often described and pictured, thus giving the treatise a definite place in pure zoological literature.

This fact explains the very noticeable and intimate association in literature between medieval medicine and medieval zoology. The physician—as the name indicates—was necessarily a naturalist and all his tides of learning, such as they were, flowed towards contemplation and study of 'things as they are'—*de proprietatibus rerum*—in the realm of nature. Bound by traditional chains—as was the whole world of science during the Dark Centuries—he had, perhaps, more than any other student of life, fitful visions of biological truth, inspirations that at the *renaissance* became clearer and clearer figures out of the night of superstition and ignorance. Thus we find that during the past four or five centuries medical men have been distinguished by more or less original and independent contributions to biological literature in all its departments.

In the early centuries the world of science was enlightened by a new luminary, the rising sun of Mohammedan enterprise.

The Blacker Library, the Osler Library, and the E.S.W. Library of Ornithology are well supplied with manuscripts and printed works (mostly in Arabic, Persian, and Hindustani) that furnish a full account of the zoological literature of Persia, North India, Arabia, and their dependencies during the early flourishing periods of Moslem Learning. Before the days of Mahomet there were in Syria and Egypt Greek-Christian and (probably) Greek-Hebrew schools, medical and other, and although the victorious Mohammedans closed most of these seats of learning the advancing hosts absorbed much of their doctrines and such of their teaching methods as were not in conflict with the dogmas of the Koran and incorporated them into their own publications. Thus the celebrated Rhaza (El Razi) tells us that a physician, Mesue (Aboru ben Masoweih), who died about A.D. 857, wrote a work whose Latin translation was entitled *De Animalibus*. Of the many Arabic authors that followed this early writer the best known is Avicenna (980–1037), who paraphrased the *Zoologia* of Aristotle and added to that great work many original observations, ranking as a naturalist writer with the equally famous Spanish-Arabian, Averröes (1126–98).

Averröes (Ibn-Rushd) was born in Cordova, the son of a learned judge. In his native city, for many centuries the centre of Hispano-Arabic culture, he studied medicine and law, and was for several years *cadi* of Seville and, later, governor of a province. If any medieval naturalist is worthy to be called the Aristotle of the Middle Ages it was certainly Ibn-Rushd. Dante in his *Divina Commedia* describes Averröes in the court of the heathen by the side of Aristotle and, as Osler points out, he was one of the principal commentators on that authority.

An account of the animals of Egypt, in particular a description of the crocodile and hippopotamus, is furnished by another Islamic authority, Abdallatif (1162–1231), in a treatise that is not merely a compilation from previous Greek and Latin authors but which contains original observations on the animal life of the Nile region.

The Blacker Library has two editions of the works of Sakanja ben Muhammed, called from the district (Kasvin) in Northern Persia where he resided, El Kasvini. This natural philosopher lived in the thirteenth century and wrote the *Wonders of Nature* in which he quotes not only his Persian predecessors in natural history but Hippocrates and Aristotle. He was an exponent of the Aristotelian theory of the development of life from lower forms to higher. He described for the first time the

orang-utan, the dugong, the flying dog (or fox), and several other new species.

The service rendered by early Arabic writers on natural history was not so much their actual observations of new facts or the promotion of original theories of animal life as in the preservation and diffusion all over the world of the humanistic writings (including the biologic teachings) of the Greco-Roman authors to which they had access. As Nordenskiöld remarks, 'through the intermediary of the Arabian philosophers the few learned scholars of the West in the early Middle Ages acquired a knowledge of the products of classical culture; Aristotle, for instance, was long read at the medieval universities in Latin versions of Arabic translations from the original writings, and the Arabic commentators, Avicenna, Averröes, and others, were the first to act as guides to an understanding of the treatises on nature and to help Europeans to penetrate that world of phenomena whose existence they had entirely forgotten'.

It is not possible here to do more than mention some of the more prominent of the other Moslem writers on natural history whose works have come down to us mostly in fragmentary form or as complete codices. Among these we find Abou el Deschahif (*ca.* A.D. 868) the author of the *Kitab-el-haiwan* or 'Book of Animals'; Abou Bekr ben Ali Ibn Wahschijah (10th cent.) who wrote a treatise whose (Latin) title is *Descriptio animalium*. Ahmed Ibu Abul Asch'ath (d. 970) is represented in biological literature through a Bodleian manuscript whose (translated) title is *Liber de Animalibus*. A famous astronomer, Abul Casim el Madschriti of Cordova (d. 1007), has left a (Madrid) manuscript entitled *Generatio animalium*.

Victor Carus tells us further about Abou Mahammed Abdallatif ben Jusuf (1161–1231) that in a description of Egyptian marvels, written in 1203, he devoted an entire chapter to a description of animals, based largely on Aristotle.

Moslem naturalists, as is well known, delighted in works similar to the *Physiologus*, and the McGill libraries have several charming Persian and Arabic volumes containing stories based on dialogues between birds and other animals. One of these—a great favourite in medieval times—is a prettily illustrated and illuminated 12mo giving thirty tales of a parrot, in which this talkative bird regales the harem with tales of jungle life. Indeed, as late as the early fifteenth century a Persian, Schiek Ferededdin Attar, wrote a *Dialogue between Birds*. Another rather important work is that of Abulfath Ali Ibn el Doreihim (d. 1361) of Baghdad, the *Utilitates animalium*, divided into four parts; quadrupeds, birds, fishes, and insects.

Still another codex, bearing a similar title but quite different text, was written by Seinneddin el-Hanefi (d. 1324).

Last, but by no means least, is the well-known work on zoology, the *Hayat ul-Haywan* ('Life of Animals') by Albulbeka el-Damiri, who died in Cairo A.D. 1405. The McGill libraries have several editions of this monumental treatise. They also shelve several extracts and partial translations, with comments by various editors reflecting in part original observations of the writers. But mostly these were founded on the teachings of early Greco-Roman codices, to which they not only had access but of which they made a large number of translations. It is upon such renderings that we must rely for all we now know of the lost originals.

The Compiler regrets that limited space prevents that extended notice of these Moslem writers that their place in the history of zoological literature demands. During three years residence in the Far East he collected (with the aid of W. Ivanow, former official of the Imperial Russian Library at Saint Petersburg) for the Blacker Library as many of the written and printed copies of their works as were available, one of which, the *Nuzhat Nama* (q.v.), has been translated and a portion published.

Among these is an anonymous codex written about A.D. 1580 entitled *Kitab-i-Haywan*,

a zoological dictionary. The copy in the Blacker Library is incomplete both at beginning and end, so that the exact date of its original composition and the name of the author cannot be determined. As it is distinctly different from other works of the kind produced during the same period it is probably unknown to cataloguers and is consequently very rare.

Of the manuscripts purchased in Persia for McGill is one by Muhammad Taqi, son of Muhammad Tabrizi, dated 1690, the title of which is *Khawassu'l-hawan*, a study of the medicinal properties of mammals, birds, reptiles, fishes, and insects, in the form of a dictionary. It was composed in honor of the royal naturalist, Abbas II of Persia. Examples are also found in the British Museum, the India Office, the Bodleian, &c. At the same time was acquired a lithographed copy of the foregoing, printed about 1858, in Teheran. It is profusely if not artistically illustrated and is supplemented by a work on poetry. This edition is extremely rare and is not found in any European library.

Another zoological manuscript (found in Shiraz) by Nizamu'd-Din Ahmad, was written *ca.* 1750, and is entitled *Midmar-i-danish*. This is a treatise on the horse, its diseases and their treatment; on amulets for horses, &c. It was composed in A.D. 1760 and is also dedicated to Abbas II of Persia.

Still another acquisition is a very rare edition of a well-known work by Prince Timur-Mirza Qajar, published in 1890, the *Baz-Nāma-I-Nasiri*. This treatise on falcons and hunting-birds in general has been reprinted and translated many times and is one of the standard works on falconry.

Also purchased in Shiraz is an anonymous manuscript of recent date, entitled *Tibbu'l-haywan*. It is on veterinary medicine and surgery and is useful for determining the meaning of the terms one meets with in Arabic and Persian works on zoology. As there is no proper introduction, the author's name, date of composition, and the formal title are not mentioned. The copy (or original) is not found in the usual catalogues, so that the present copy of the treatise may be unique. There is a table of contents at the end of the book and the caligraphy is good.

The influence of Chinese literature on occidental faunal publications has been practically nil and yet elaborate books—both as printed volumes and codices—were produced in China for many centuries and greatly affected the art and science of the great Empire as well as Korea and Japan. The librarian of the Gest Library of Chinese Literature in McGill—the largest of its kind in America—has kindly contributed a review of the zoological works in his collection, a contribution that has been introduced into the chapter in this Introduction on Oriental Zoological literature.

Of the (about) 180 incunabula in the McGill libraries (about) 30 are more or less zoological. The compiler has annotated the majority of the latter for the appended Catalogue and referred to a few of them in the present Introduction and Index.

The first printed book on animals (as well as the first treatise on medicine) is the 1467 edition of *Rabanus Maurus*. This Abbot of Fulda wrote (*ca.* A.D. 820), his famous *De Sermonum Proprietate*, of which Book VII contains descriptions of fishes, serpents, and other animals. Of this extremely rare incunable only three are in America, one of them in the Osler Library.

CHAPTER II

MEDIEVAL WRITERS ON ZOOLOGY AND THEIR IMMEDIATE SUCCESSORS.

Emperor Frederick II—Hildegarde of Bingen—Albertus Magnus—Vincent de Beauvais—Conrad von Megenberg—Bartholomaeus Anglicus—Anselm of Canterbury—Herbals—Edward Wotton—Dame Juliana Berners—Johann von Cube—Conrad Gesner—Aldrovandus—Guillaume Rondelet—Pierre Belon—Leonardo da Vinci—Fabricius ab Aquapendente—Marcus Aurelius Severinus.

PARTLY because of the impetus given to literary production by the Saracen invasion we notice a general European revival of interest in the natural history of Aristotle and other early writers. This forerunner of the later renaissance did not dispel many of the clouds of ignorance and superstition that had settled on occidental lands, but the thirteenth century may be taken as the period of a noteworthy, if temporary, scientific revival.

A further account of these important Islamic contributions to the literature of Zoology will be found in the chapter on Oriental Literature.

The annals of the chase, and especially descriptions of falconry and other forms of hunting furnish, incidentally, rather good accounts of the animals involved. That interesting codex the *De arte venandi cum avibus* of the Emperor Frederick II of Hohenstaufen (1194–1250) is a case in point; and there were many other in which original observations of local fauna are recorded. Fairly good descriptions of the fishes and insects known to naturalists in the thirteenth century are also given by this Imperial author, although the former are, in some instances, not readily identified.

Among his many activities Frederick regulated and improved the ancient school of medicine at Salerno and initiated a registration of physicians.

Many accounts, long and short, have been written of the life and acts of this famous medieval personage, but the Compiler is aware of no review of his career superior to the brief outline contained in Eric Nordenskiöld's summary: 'Italian in his upbringing, half oriental in his habits and mode of thinking, he gathered round him learned men from the East and West. He had Aristotle's writings translated from the Greek into Latin. Frederick's treatise on falconry is far more than a mere dissertation on hunting; in a lengthy introduction he gives an account of the anatomy of birds, in which he not only displays a knowledge of Aristotle's anatomical writings, but is also able to point out inaccuracies in his statements; further, he describes avian habits and the movements of migratory birds, &c. Unfortunately Frederick lived during the period of ecclesiastical reaction in the thirteenth century, and after his death his priestly opponents eradicated most of the cultural progress he had achieved; the dissection of human bodies was again prohibited and physicians had henceforth, as before, to rely on the classical authorities. The translation of Aristotle which he caused the learned Michael Scotus to carry out was perhaps the most enduring evidence of his cultural aims; it was on this work, in fact, that the scientists of the later Middle Ages in general based their learned studies.'

The accompanying Catalogue lists several editions of the well-known treatise on falconry referred to above, and the Compiler had an opportunity to study the famous manuscript in the Vatican library.

The faint flickers of originality that, apart from the Arabian *lux ex oriente*, lit up the gloom of the Dark Ages were furnished in part by a nun, the celebrated Hildegarde of Bingen

(1098–1180). She wrote the *Physica* (see Chas. Singer's *Studies in the History and Method of Science*), which contains popular but more or less personal notes on animals and plants, and the use man can make of them.

A naturalist whose name is familiar to students of medieval literature is Albertus Magnus (1193–1280), his real name Albert von Ballstadt. He joined the newly formed order of Dominicans, became a professor in Paris and, finally, bishop of Regensburg. Retiring to the quiet of a monastic cell he devoted his life to science as it was then conceived, and particularly to 'harmonizing' the writings of Aristotle with the teachings of the Church.

A more important service we owe to Albertus Magnus; *edidit flammam*, he kept alive and encouraged an interest in nature herself at a time when the minds of men were powerfully and exclusively directed to a supernatural world in or beyond the skies.

Although the revival of interest in such humanistic studies as those supplied by Aristotle was noticeable towards the end of the Middle Ages, it must not be forgotten that most of the teaching bodies were ecclesiastic in character and opposed to original research or an expression of any opinion not fathered by an all-powerful church. Any departure from this rule was promptly met by fire, sword, or cord. This mixed state of mind is discussed by J. G. Schneider in his *Aristotelis, historia animalium*.

Victor Carus gives an interesting account of the three Dominican friars that in the thirteenth century attempted to furnish the world with all that was really known about the zoology of their time. These were Vincent de Beauvais, Albertus Magnus (1193–1280) and Thomas de Cantimpré. The last named is also known as Brabantius, from his native province. His life dates are 1186–1263 and he wrote a *De naturis rerum*, a *Bonum universale de apibus*, and several other natural philosophical books, giving them a moral (i.e. ecclesiastic) turn when possible. His treatises must be regarded as among the few medieval books on zoology that mark progress in that science.

He catalogued and described (often accurately) 110 mammals, 114 birds, 85 fishes, including, of course, the usual number of fabled animals and duplications of species under different names. In addition to Aristotle this author quotes Galen and a number of other medico-naturalists as his sources of information.

The notations following the titles in the McGill libraries attributed to Albertus Magnus furnish a sufficient account of this priest's literary labors, but it may be said here that he was by far the greatest of the triumvirate just mentioned and perhaps less hampered, although a devout son of the Church, by ecclesiastic shackles than his two contemporaries.

Vincent de Beauvais (Vincentius bellovancensis; d. 1264), whose *Speculum Quadruplex* in seven folio volumes was first printed in 1473, exhibits a fine example of a voluminous compilation, an immense encyclopedia after the Arabian style. He furnishes, with his authorities meticulously quoted, a complete review of all the natural, doctrinal, moral, and historical data of the times. The seventeenth book describes, in alphabetical order, the birds; the eighteenth the fishes; the nineteenth domestic mammals, the twentieth wild animals, and the twenty-first other animals, including serpents, 'reptiles', and worms. The *Speculum majus* has been several times reprinted, the last edition in 1624.

The foregoing represents only a small portion of the literary activities of medieval naturalists. We may add to the list of authors Gerard de Broglio, Bartholomaeus de Bragantiis and Engelbert d'Admont, all of whom in the thirteenth century wrote codices on the natural history of animals, each of them advances and improvements on the bestiaries of that period.

Mention has been made of that important writer *Bartholomaeus anglicus*. Of course one refers to the earlier writer of that name and not to the de Granville (or Glanvilla) of a later century. Of the more important Bartho-

lomew we know little except that he was an English Franciscan monk, whose *De Proprietatibus Rerum* (q.v.) is among the most famous of medieval writings. His *Historia* (*Liber*) *animalium* is, like the encyclopedia of Vincent of Beauvais, an immense compilation of previous writers, most of them familiar to us, to which some original observations are added. The work passed through many editions, the latest one known to the Compiler having been published in 1619.

The passing of the early part of the medieval period saw several new and important publications on zoology, among them the celebrated work of Conrad von Megenberg (1309–78), the (rare) illustrated *Buch der Natur*. Comparatively unknown is Jacob van Maerlandt who, about the same time, wrote a similar work entitled *Naturen Bloeme*. The former work (the first natural history printed in German) was reissued and thoroughly analysed by Franz Pfeiffer, Stuttgart, 1861, and the student is referred to that review. Von Megenberg reflects the first glimmerings of the humanistic, *renaissance* torch.

Although a Dominican friar and presumably much influenced by ecclesiastic conventions and traditions, his book exhibits many decided advances on previous treatises. Several reprints and editions of this fundamental volume have appeared during the past four hundred years.

Let us now glance at the zoological literature of a comparatively modern epoch, that post-medieval era when University teaching had expanded and had been liberalized, when speech became freer and, above all, when the invention of printing brought works on natural philosophy, both ancient and recent, within reach of the many.

This revival of zoological research in Europe was, of course, a part of the New Birth of science. All the currents of independent thought, as opposed to superstition and mere authority, ran towards a scientific River of Doubt and Exploration.

Of those that lived and worked on the borderland of the Old and the New was Edward Wotton (1492–1555), son of a college porter in Oxford University, who rose to distinction as a practising physician. He worked for over twenty years on his *De differentiis animalium* and proved himself a faithful follower of Aristotle, whose animal classification—viviparous quadrupeds, oviparous quadrupeds, sanguineous animals, non-sanguineous animals, &c.—he accepted. He did, however, reject many of the fabulous creatures whose pictures and descriptions had been handed down from antiquity, although he—*die Güte liegt so nah*—rarely gives a description of many new forms that, quite at hand, British explorers were constantly bringing to England. One must, of course, not forget that Wotton was, as a physician, mostly interested in the medicinal uses of the animals he described.

Cuvier thinks that the commentary by Petrus Gyllius (Leyden, 1583) on Aelian should be bracketed with Wotton's work. The former is entitled *Ex Aeliani historia latine facta . . . de vir et natura animalium*. This claim does not appear justifiable although Wotton does quote Gyllius a number of times, and was probably influenced by his writings.

Animal dialogues were, following the invention of printing, published in plenty after the style of the medieval *Physiologus*—the most noticeable one being the *Lucidarius* (or *Elucidarius*) attributed to Anselm of Canterbury. The first edition appeared in 1479, since which date many printings of it have been made in almost every European language. It was, in fact, a 'best seller' of its day.

Dame Juliana Berners, at one time Prioress of the Nunnery of Sopwell, Herts., flourished about 1460 and wrote treatises on Hawking, Hunting, Coat-Armour, Fishing, and Blasing of Arms. These tractates form the famous *Book of St. Albans*, the first edition of which was printed and published by Wynkyn de Worde in 1496. It is profusely illustrated by excellent woodcuts and has been several times reprinted. In the course of this work the natural history of hunted animals—birds,

fishes, and mammals—receive attention, thus making it a proper title for a zoological library.

Probably the best account of the life and writings of Dame Berners is given by Joseph Haslewood as a preface to the facsimile edition of London, 1810, a historical research of great zoological value and one well worth reading. This work is now among the rarities but an example will be found in the Blacker Library, together with a unique MS. copy of the same edition.

The early post-medieval period was also, it must be remembered, an era of numerous herbals and faunal *pharmacopeias* in which not only plants but animal parts were described for their value as remedies in disease. A few of these are of zoological importance because of the description of the animals themselves. Apart from that consideration *Kräuterbücher* and other herbals do not really belong to this Introduction.

The titles *Gart* (*Garten*) *der Gesundheit*, *Hortus* (Ortus) *Sanitatis*, and *Garden of Health* have an oriental suggestion. Under the first heading it appears as the earliest printed German Herbal having natural history interests. It has also an important standing as one of the first prints illustrated by woodcuts. This celebrated natural history treatise was probably a compilation by Johann von Cube, a Frankfurt physician. It was derived from various ancient and medieval sources, notably from the *Speculum Naturale* of Vincentius de Beauvais, the *Etymologiae* of Isodorus Hispalensis, and from Megenberg's *Buch der Natur*. The first edition of the *Hortus* was published in Mainz by Peter Schöffer in 1485 (Hain 8948), since which date many variants, large and small, have appeared in several languages, including English. Probably the most elaborate edition is the *Hortus Sanitatis Major*, folio, Mainz, 1491, Jacob Meydenbach (Hain 8944), 453 leaves, xylographic title-page, seven full-page and over a thousand smaller woodcuts of plants, animals, and minerals. As Payne has said, it was the model for all subsequent editions. Folio editions with full-page cuts are called 'major'; smaller formats 'minor', or are not distinguished by any adjective. Occasionally some of the cuts are coloured, but these are not, as a rule, accurate and do not assist in elucidating the text.

One of the Blacker copies (the second edition) of the *Hortus Sanitatis Major*, Strassburg, Johann Pryss (*ca.* 1497), folio, 360 leaves, has three full-page woodcuts, 530 smaller cuts of plants, 164 of quadrupeds, 122 of birds, 106 of other animals, and 144 of minerals, and the text includes most of the zoological facts of Megenberg's *Buch der Natur*. The large initials are rubricated, the woodcuts are old-colored, and there are a few contemporary marginal notes. Choulant calls the *Hortus* the most important illustrated natural history of the Middle Ages. Five editions are shelved in the McGill libraries, two of them incunabula.

The outstanding product of the New Birth in zoology was Conrad Gesner (Gessner) of Zurich, early a student of medicine, philosophy, &c. at Paris, Montpellier, and Basel. This versatile genius was at one time professor of Greek at Lausanne and eventually was appointed municipal physician of his native town, where he died of the plague in 1565. His comparatively short life was a continual struggle with hardships; to gain a living he had to do much hack-work in many departments of literature. Perhaps his superabundant energy was stimulated by these obstacles; at any rate he found time to accomplish what might well have absorbed the vitality of several men of genius. Among his many writings is the famous *Historia animalium*, 1551, four large folios of nearly 3,500 pages, in which he classified species on the Aristotelian plan, although the influence and example of Pliny are also noticeable throughout. The first part treats of quadrupeds, the second of birds, the third section of fishes, and the fourth, a posthumous work, of reptiles and insects. Its alphabetic arrangement and the careful preparation of the text appeal to the student. Numerous original observations are recorded,

and he rejects (on stated grounds) many of the fabulous animals accepted by his predecessors.

Probably the highest compliment paid to this voluminous compiler is the attempt of the Germans to adopt him, with the title of the 'Pliny of Germany'. As a matter of fact Gesner was born, lived, wrote, and died in Switzerland, and was proud to be called a Swiss. Osler refers to him as follows: 'Conrad Gesner, who kept open house, . . . for all learned men who came into his neighbourhood . . . was not only the best naturalist among the scholars of his day but of all men of that century he was the pattern man of letters. He was faultless in private life, assiduous in study, diligent in maintaining correspondence and good will with learned men in all countries, hospitable—though his means were small—to every scholar that came into Zurich. . . . While finding time for services to other men he could produce as much out of his own study as though he had no part in the life beyond its wall, . . . He is the father of Bibliography.'

An important innovation in this remarkable work was the employment of illustrations by the best artists of the day; indeed, he draws attention to the fact that the picture of the rhinoceros was made by Albrecht Dürer. It is hardly necessary to say that the *Historia animalium* long continued to be a storehouse from which succeeding writers 'borrowed' many a helpful page.

In this connection it must be remembered that medieval artists, including monastic illustrators, often drew faithful pictures of faunal life.

In the Albertina Museum (Vienna) are preserved aquarelles and other drawings by Albrecht Dürer of animals similar to that just mentioned as contributed to Gesner's *Historia*. Facsimiles of Dürer's drawings can be seen in the Blacker Library.

So far as concerns *quantity* in the literature of sixteenth-century natural history at least one follower of Gesner surpassed that great writer. He is Ulisse Aldrovandi who, born in 1552 of a Bolognese family, studied philosophy and medicine at Rome and Padua. He was later made professor at Bologna where he resided for forty years, dying at the advanced age of eighty, when he willed his large collection of natural objects, including many unpublished manuscripts, to his native city.

Probably his treatises are an improvement on those of his prototype Gesner, although Buffon (who superseded him) declares that only about ten per cent. of Aldrovandi's work is worth preserving. However, Nordenskiöld holds that his illustrations, typography, and classification are improvements on Gesner's.

Guillaume Rondelet was born in 1507 at Montpellier, where he later taught anatomy in the University. He is best known by his work on sea fishes—*De Piscibus marinis*—which included whales, seals, cephalopods, crustaceae, and vermes. He was especially noted for his dissections of these animals, which led him to contradict many of the assumptions of Aristotle.

Pierre Belon, born in 1517 at Le Mans, was a medical naturalist who traveled widely, made large collections of animals—especially of fishes—and wrote at least two monographs on marine life. They are entitled *La Nature et les diversités des poissons* and *L'Histoire naturelle des étranges poissons marins*, both of which include even a wider range of species than those described by Rondelet. However, Belon regarded almost every mammalian swimmer as a 'fish', among them the otter, the hippopotamus, and the beaver. During his Eastern travels he discovered several oriental types unknown to his contemporaries. It must be noted that his piscine classification approaches the modern and includes a division of true fishes into bony and cartilaginous.

Belon did even better as an ornithologist. His *Histoire des oyseaux* (1555) arranges the various groups according to their structure and habits; there is in his writings much evidence of a study of the morphology and histology of species, while comparative anatomy is illustrated in the pictured comparison of the skeleton of a man with that of a bird in his

first book on avian life. In this last regard he was far ahead of his times.

Although Belon may be regarded as the first serious comparative anatomist, Leonardo da Vinci (1452–1519) helped along what is actually a modern study by his attention to anatomical details in art, just as Andreas Vesalius (1514–64) created a new era in medicine and surgery by his careful attention to human dissection.

It is, however, to Fabricius ab Aquapendente (Girolomo Fabrizio) that we must look for the first wide application of Belon's attempt to place comparative anatomy and, perhaps, comparative embryology, where they rightly belong. His work on the development of the fertilized ovum is but a part of these investigations, most of which are fully illustrated.

In many respects Marcus Aurelius Severinus (1580–1656) is a more important comparative anatomist than his predecessors. His *Zootomia democritaea* is not merely a defense of comparative anatomy in the modern spirit but is a systematic treatise on that subject, with notes on his own zootomic experiences with birds, mammals, fishes, and many invertebrates. He gives a full account of the dissecting instruments, lenses, &c. used in this histologic art. The Compiler has his *Ornitholographia*, a chapter of the *Zootomia*, separately bound, actually a comparative study of the feet of birds.

CHAPTER III

THE RENAISSANCE AND ITS EFFECT ON THE RECORDS OF ZOOLOGICAL SCIENCE — PUBLICATIONS OF NATURAL HISTORY SOCIETIES AND MUSEUMS THROUGHOUT THE WORLD — SOME SIXTEENTH AND SEVENTEENTH CENTURY WRITERS ON VERTEBRATE ZOOLOGY.

Academia Naturae Curiosorum—Accademia dei Lincei—Royal Society of London—Académie des Sciences de Paris and its congeners throughout France—Berlin. Gesellschaft Naturforschender Freunde—The Preussische Societät (Akademie) der Wissenschaften and similar societies throughout Germany—Academie Royale des Sciences, Brussels—Academie d. Wissenschaften, Vienna—Académie des Sciences, St. Petersburg—Swedish Société des Sciences et des Lettres and other Scandanavian Natural History Societies—The (London) Royal Asiatic Society and its associates in the Far East—Local British Societies of Natural History—The Smithsonian Institution and other American Natural History Societies and their numerous publications—K. Dansk Videnskabernes Selskab—Philadelphia Academy of Sciences—Associations for the Advancement of Science in England, America, France, and Germany—International Congresses on Zoology—Società Zoologica Italiana—Early and some Recent British Local Faunists and their Writings—Ferrante Imperato—Clusius—John Hunter—Ray—Willughby—Hans Sloane—W. Charleton—Johannes Jonstonus—Topsell—S. Collins—G. Germano—H. von Hoevel—H. H. Frey—W. Frantze—S. Bochart—D. Sennert—Scaliger—Nieremberg—José d'Acosta— Hernandez—G. Piso—Molina—Gesner—Schwenckfeld—Borelli—C. Merrett—Sibbald—Agricola—Tulp—O. Worm—John Caius—P. Gillius—J. Bontius.

THE scientific awakening of Western Europe in the sixteenth century and the alliance of medicine with biological research in University study were followed by the founding of important academies, societies, and museums for the special investigation of natural history. Among the first named were the *Academia Secretorum Naturae*, Naples (1560) (later suppressed by the Church), the London Royal Society (1662), and the Paris *Académie des Sciences* (*ca.* 1670). These and numerous other early institutions, to be later mentioned, published and some of them continue to publish to the present day important serials and periodicals devoted to zoology, most of them on call in the Blacker and other McGill libraries.

The spirit of these institutions is well illustrated by the motto of the (London) Royal Society, 'Nullius in verba'.

In other words the rules of the society insured the collection of carefully noted phenomena only and the critical investigation of all new or remarkable observations. As Lankester says, 'Under the influence of the touchstone of strict inquiry thus set on foot by the Royal Society, the marvels of witchcraft, sympathetic powders, and other relics of medieval superstition disappeared like mist before the sun'.

The Royal Society began to issue important and continuous publications since its foundation in 1662; its fellowship constitutes by far the most notable roster of British naturalists,

and its *Philosophical Transactions* (1664 to date) and other serials are essential to the usefulness of any biological library.

The output of zoological literature was from quite early times stimulated by the formation of these learned societies first throughout the western world and later in America and Asia, many of them devoted to the study of natural history. Only a partial list of these can be mentioned here, but practically all of them had sections on natural history or had leanings thereto, and they are represented, with the titles of their literary products, in this Catalogue, as *transactions*, *comptes rendus*, *annali*, *Abhandlungen*, &c., many of which are difficult to secure to-day.

Germany was among the first to found scientific societies and academies. J. L. Bausch, a doctor of medicine at Schweinfurth in 1652, initiated the famous *Academia Naturae Curiosorum* which, under various changes of name, status, and publications was destined to exert a powerful influence on European zoology and to survive until the present day. It is now best known as the *Academia Caesarea Leopoldino-Carolina Germanica*, whose *Nova Acta* and other periodicals are shelved in the McGill libraries.

As mentioned, among early institutions of natural science in France is the famous *Académie des Sciences de Paris*, founded about the middle of the seventeenth century. After a reorganization and division of the *Académie* into sections there began a yearly publication of *Mémoires* which, interrupted only by the stormy days of 1790, have appeared regularly ever since. The list of academicians is practically that of the most renowned men (and women) of learning in the French dominions.

Quite as important for the present Introduction was the founding in 1626 of what was then the 'Jardin Royal des Herbes médicinales', later the 'Jardin des Plantes', and now the 'Musée d'Histoire Naturelle'. The *Annales* and *Mémoires* of this famous institution were first issued in 1802.

The titles of the Paris *Académie des Sciences* were copied in many French cities—e.g. in Dijon, Marseilles, Amiens, Caen, Bordeaux, Lyon, Toulouse, Montpellier, and Rouen. The majority of these important publications, largely collected for the Blacker Library, are to be found in the accompanying Catalogue.

Several short-lived academies about this time also appeared in Italy—the *Accademia dei Lincei*, the *Accademia del Cimento* (1651–67), *et al.*

The foundation of the *Académie Royale des Sciences*, &c., at Brussels occurred in 1772, since which date many valuable *Mémoires*, &c., have been regularly issued, most of them listed in the Catalogue.

Owing to political and other complications the German *Königliche Preussiche Societät (Akademie) der Wissenschaften* was not founded until 1700. It underwent various titular changes and issued a variety of important periodicals (some of them published in the French language, fashionable during the reign of Frederick the Great and afterwards) that have regularly appeared, albeit under occasional changes of title, until our own time.

Of the many other noteworthy German societies devoted more or less to natural history and contributing much of value to zoological literature the Compiler can refer here only to a few. Among them are the *K. Akademie der Wissenschaften*, Wien, founded in 1846; the *K. Gesellschaft der Wissenschaften* at Göttingen, founded in 1751; the *K. Akademie Gemeinnütziger Wissenschaften*, founded in 1754 and displaying several changes of title; in Munich several virile societies, the earliest the *König. Bayerische Akademie der Wissenschaften*, founded in 1758 and publishing (among many other periodicals) their *Abhandlungen* in 1763 with various continuations to the present year. In Danzig, there was founded in 1743 the *Naturforschende Gesellschaft*, prototype of numerous societies with similar names founded throughout German-speaking Europe, that have published many *Annalen*, *Versuche*, *Verhandlungen*, *Schriften*, &c., most of which are still issued, and are listed in the present Catalogue.

Of the societies for the study of special departments of biology gradually developed in all civilized countries, one may mention here the important Palaeontographical Society (founded in 1847) whose monographs, mostly in the form of annual volumes, have been issued since 1848. Those referring to vertebrate zoology will be found in the McGill libraries and a complete list to 1908 can be consulted on pp. 1501–2 of the Br. Mus. Cat. (Nat. Hist.).

Among the many—too numerous to receive mention here but mostly listed in the appended Catalogue—popular publications of German natural history societies is the active and productive *Berliner Gesellschaft Naturforschender Freunde*, the foster-parent of many similar societies in middle Europe. Founded in 1773 it has continued to function since that date and to publish continuously several periodicals of which, perhaps, the *Schriften* and its continuations (1780 to date) are the best known.

It was, in like fashion, the *Kgl.-Preussiche Akademie* (founded in 1700) that published the *Descriptiones Animalium* of J. R. Forster's voyage to the South Seas in 1772–4, and the zoologic reports of R. Kossmann's journey to the Red Sea, 1877–80.

A very important, vigorous, and literature-producing *Académie des Sciences* was planned in St. Petersburg by Peter the Great and founded in 1725 by his widow, the remarkable Catherine I. Immense collections of books, manuscripts, and natural objects were purchased throughout Europe by these rulers, while the activities of scientific investigations and investigators were encouraged during the past 150 years so that an extensive Russian zoological literature, often published in several European languages (in addition to the Russian text), is familiar to all advanced students of systematic biology.

In 1720 Linnaeus helped to create in Uppsala and to write for the Swedish *Société des Sciences et des Lettres*. This was followed by the foundation of the *Kongliga Svenska Vetenskaps-Akademien* in 1739. The *Arkiv, Handlingar*, &c. of these important institutions continue to be issued to the present time. See the appended Catalogue.

Through the munificence of an Englishman there was founded in 1846 at Washington what was destined to become a center of great scientific importance—the Smithsonian Institution. Its *Annual Reports* (begun in 1846), its famous *Contributions to Knowledge* (1848), its *Miscellaneous Collections* (1862), and many more publications of its branch organizations (especially the U.S. National Museum) have added a large number of original and extremely valuable monographs on vertebrate zoology to the literature of biology.

In Denmark the University of Copenhagen with its scientific clientele has played an important part in the publication of zoological literature from 1671 onwards, aided by the *Skrifter* and other journals of such associations as the *K. Dansk Videnskabernes Selskab*, founded in 1742. Many of the Danish serials and other periodicals are listed in this Catalogue.

Of much importance are the publications of the (London) Royal Asiatic Society and of its associates—the Asiatic Society of Bengal, Ceylon, Japan, Malaya, &c.

The *Philadelphia Academy of Sciences* and other flourishing natural history societies were more recently founded in America. The *Journal of the Philadelphia Academy* was first published in 1817.

At the risk of duplication one may at this time refer to a few rather important (some quite early) British publications in zoology partly dependent upon the impetus resulting from the establishment of local natural history societies. Some of these monographs will also receive attention elsewhere in this Introduction. The Compiler has in mind such treatises as *Irelands naturall history* by Gerard Boate, 1652; Joshua Childrey's *Britannia Baconica*, 1661; C. Merrett's *Pinax rerum naturalium Britannicarum*, 1666 (several editions); Robert Plot's *Natural History of Oxfordshire*, &c., 1677 (2nd ed., 1705); the same author's

—11. I am indebted to Dr. Résibac-Roese for the following note: One of the first books on the natural history of China is the famous

"China Monumentis, qua sacris qua profanis, nec non variis naturae & artis spectaculis, aliarumque rerum memorabilium argumentis illustrata, auspiciis Leopoldi Primi, Roman. Imper. semper Augusti, munificentissimi mecaenatis, Amstelodami, apud Jacobus a Meurs, in fossa vulgo de Keysersgrache, Anno MDCLXVII by Athansius Kircher. Chapter Vi, p.176-190 is devoted to plants and trees(with many illustrations); Chapter Vii, p. to animals; Chapter XIII, to birds, Chapter IX to Fishes, Chapter X to Serpents, Chapter XI to Tortoises, etc.

This work in the original edition of 1667 is in the possession of the Redpath Library.

Natural History of Staffordshire, &c., 1686; Chas. Leigh's *Natural History of Lancashire*, &c., 1700, and Robt. Sibbald's *Scotia illustrata*, 1684. These were, of course, the forerunners of those numerous and important local histories of which the *Victoria History of the Counties of England* is such a conspicuous example. Quite as plentiful is the supply of similar periodicals published by local British-Colonial and American institutions.

It was in the eighteenth century (1737) that F. de Plantade published his *Mémoires pour l'histoire naturelle de Languedoc* in much the same vein as the British monographs. In Switzerland J. J. Wagner had written and published (Zürich) as early as 1680 the *Historia naturalis Helvetiae curiosa*, that subsequently appeared in several editions. A Polish treatise by Gabriel Rzaczynski appeared in 1721, a *Historia Naturalis curiosa Regni Poloniae*.

As will be seen by later references in this Introduction, the very useful, popular Associations for the Advancement of Science and similar societies in England, the United States, Germany, and France were not founded until well into the nineteenth century. Various International Congresses devoted to the study and discussion of zoology in all its branches have also done much to advance that science. The literary output of these conventions is listed in the present Catalogue.

Elsewhere the publications of modern Italian natural history societies are mentioned and catalogued. Here one may refer to the active *Società Zoologica Italiana* (founded in 1892), whose *Bullettino* has been published in Rome since 1882.

Periodical literature has been given a special chapter in this Introduction; hence little more will be said of it in this place except to draw attention to the fact that societies devoted to natural sciences often stand *in loco parentis* to those most important titles in all faunal literature, viz. the transactions, magazines, journals, archives, annals, &c. that constitute the body of *periodica zoologica*. As is well recognized, most works in science, whether systematic or popular, are largely compendia or extensions of articles or papers previously published in periodicals. For this reason the Blacker and other scientific libraries of McGill have striven to make their collections of journals as complete as possible, and to the captions of the Catalogue the reader is referred for more extended information regarding these original sources.

A number of writers on natural history during the period of the *renaissance* have already been mentioned. To these may be added more than one Italian, among them Ferrante Imperato (1550–1625), whose *Del l'Historia Naturale*, Naples, 1599, dealt with flora, fauna, and geology in a rather original fashion, and whose twenty-eight books on the subject went through several subsequent editions.

Another early Italian naturalist, Ippolyto Salviani, wrote in 1554 a work on aquatic animals; 256 (folio) leaves illustrated by 83 plates.

Later there appeared an interesting work by Francesco Carcano vel Sforzino, entitled *I tre libri de gli Uccelli da Rapina . . . con un trattato dei Cani, 1622*.

Still later, Joannes de Laet (1593–1649) published a disquisition (1648) on G. Marcgravius' and G. Piso's works, discussing the fauna and other natural products of Brazil.

Both the Osler and the Blacker Libraries have several titles headed by the name of that voluminous French writer Chas. de Lécluse (or Clusius) (1526–1609), whose zoological writings, translated into several European tongues, ought to be familiar to the student.

Another indirect result of the early foundation of scientific institutions was a race of investigators whose labors furthered greatly the onward progress of zoology. During the latter part of the eighteenth century this evolution in literature culminated in Linnaeus, the father of systematic biology, and in such men as John Hunter, the famous surgeon, founder of modern comparative anatomy, a

study that he helped to build on a firm foundation.

Of pre-Linnean names in systematic zoology, the most prominent is that of John Ray (1628–1705), or Wray (as he wrote himself until 1670), regarded by many as the founder of English natural history. Besides editing the works of his friend and pupil, Francis Willughby, he contributed much of value to the literature of zoology; indeed his writings greatly lessened the extensive labors of the great Linnaeus. He it was who defined the term 'species', until his day loosely applied in the classification of animal life. In naming the larger groups he made unwonted use of anatomical characters and it is, perhaps, not incorrect to speak of him as the father of scientific zoology.

Ray was sent to Cambridge where, among other subjects, he studied natural history and eventually held University offices. Obliged to leave college on account of religious differences he joined Willughby, member of a rich and noble family, who enabled him to devote himself entirely to scientific studies.

The two friends (the older man addressed the younger as 'amicus et Maecenas suus') went together on a two years' journey through Europe, travels that are recorded in *Observations topographical, moral and physiological*, 1673, in which Ray printed his famous *Catalogue of Plants not native of England*. Returning to England laden with collections of various kinds, they settled down in Willughby's country house to work on the collected material; but this scheme was interrupted by the death of the patron who, however, made Ray one of his executors and appointed him guardian of his two sons.

Ray finally moved to the cottage left him by his parents where for over twenty years he continued his numerous researches, the results of which have greatly affected the progress of science. Although he made botany his chief study, his literary work included all the divisions of zoology, folk-lore studies, &c. Ray's classification of vertebrates is not really as comprehensive as that he made of plants; indeed Willughby wrote most of the treatises on zoology. After the premature death of the latter his collaborator published, in his own name, a book on fishes and another on birds that were probably the combined work of both writers. Ray also wrote works on quadrupeds, reptiles, and insects, the first two being his most important contribution to vertebrate biology. All of the aforementioned titles will be found in this Catalogue.

The progress of zoological observation from Ray to Linnaeus was marked by the vigorous labors of many scientific investigators, among them Woodward, the paleontologist; Hans Sloane and Rumphius, collectors; Alex. Monro and Shaw (1692–1751), travellers; Réaumur, the entomologist, and Peyssonel, Linck, and Lhuyd, students of fishes.

Of the bountiful literature of this period the Compiler can mention only a few titles.

A classic treatise on zoology was the *Onomasticon Zoicon* of Walter Charleton, the first edition issued in 1668, followed by several others before 1680.

An early British local faunist was Joshua Childrey who wrote in 1661 *Britannia Baconica, or Natural rarities as they are found in every Shire.*

La Caccia dell'Archobugio (Bologna, 1672) of Vita Bonfadini is an illustrated 12mo of 96 pages that not only gives directions for hunting various animals with the arquebus but also describes quite carefully the hunted birds and mammals.

An important, early contribution to comparative anatomy was Samuel Collins's *A systeme . . . treating of the Body of Man, Beasts, Birds, Fish*, &c., 2 vols., illustrated, London, 1685.

The *Ichthyographia* (London, 1685) of Francis Willughby, folio, with many plates of fishes and an elaborate title-page, forms a most important atlas of piscine literature which should be in every zoological library. It has also a decidedly human interest, the full-page plates being dedicated to various well-known

members of the Royal Society, among them Christopher Wren and Samuel Pepys, the diarist.

Joannes Jonstonus, or plain John Jonston, although born abroad in 1603, was of British descent and a student at St. Andrews. After many years of research at various continental universities he returned to England, but again set out on his travels, graduated as a physician, and finally settled in Silesia. A brief notice is given in this Catalogue of his great zoological encyclopedia, alphabetically arranged, a rival of Gesner's heavy tomes. This is the *Thaumatographia naturalis in decem classes distincta*, 1633, in which he describes the marvels of the natural world. Five of the six books are devoted to man, the remainder to other animals. We may without hesitation bracket this immense work with the treatises of Aldrovandus and Gesner, and note that successive editions were translated into Dutch and (the Birds) into French. The artistic plates display, as a rule, German synonyms; the text matter shows generally a decided scientific advance over previous writings on the various subjects —on the fishes in particular.

Because he occupied a prominent place on the roster of seventeenth-century faunal encyclopedias one must speak of Edward Topsell, and especially of his *Historie of Foure-footed Beasts*, 1607, and the *Historie of Serpents*, 1607. Most editions of these cyclopedias are listed in our Catalogue.

Attention should also be given to Giovanni Germano, who, in 1625, wrote a *Breve e sustatiale trattato . . . delli più principali animali . . . con il corpo humano*, &c., illustrated with 12 copperplates of osteologic subjects, monkey, dog, cat, several birds, bat, man, *et al.* The writer was a Provençal Minorite friar, author of several works on anatomy and surgery. The present volume is very rare and is counted among the earliest works on comparative zoology. A fine copy is in the Blacker Library.

Contemporary with Germano's treatise there appeared two rare works—H. von Hoevel's *Neuwer wunderbarlicher Thiergarten*, &c., Frankfurt a.M., 1601, and Johann Sperling's *Zoologia physica*, 1661. The latter, edited and published after the author's death by G. G. Kirchmaier, exhibits original thought and is an effort to furnish a more rational classification of animals than had hitherto been attempted.

In 1595 the pastor H. H. Frey published his *Biblisch Thierbuch*, &c., now a very rare book, in which he shows us that God has given us animals for other purposes than food, sport, and game; for companionship, as teachers of morality, and so on. It was a new dogma and one feels like commending its perusal to a certain class of Christian 'sportsmen' of our own day, many of whom would be the better of a book on the rights of animals.

We find an extension of the teachings of Frey in the treatise of Wolfgang Frantze (*Historia animalium sacra*, 1612) that has been reprinted and translated many times. An English edition appeared in London, 1670. In addition to his recognition of the habits and domestic life of our animal brothers he proposes a rational system for their classification. As for 'dracones' he says, with much spirit and truth, 'the principal dragon is the devil'.

A more complete and popular sacred natural history is the famous *Hierozoicon* of Samuel Bochart, London, 1663, several subsequent editions of which were published elsewhere.

The encyclopedic period produced a number of other treatises, only a few of which will be mentioned here. One of these is often quoted—Daniel Sennert's *Epitome naturalis scientiae*, 1618. This author was a professor of medicine in Wittenberg, and attempted a crude classification of animal life. Earlier but not less important is the *Exotericarum exercitationum Liber XV*, Paris, 1557, of J. C. Scaliger, who notes many original observations of animal habits. Of some slight value, also, is the rare *Historia naturae* of Nieremberg, 1635, divided into 16 'books', after the ancient style.

Illustrations of zoological works by copper, steel, and wood engraving soon became common enough, and during this period numerous examples appeared of designs by artists famous

in other departments of art—Nicolas de Bruyn, C. J. Visscher, Adrian Collaert (or Collard), Adrian Bloemart, Saint Lucas, Albert Flamen, and Antonio Tempesta, most of whom are represented by titles in the McGill Libraries.

Reference has several times been made to early zoological observations found in treatises on medical zoology, i.e. on animal products as remedial agents in human therapeutics. Quite frequently discoveries in faunal and floral life made by early voyagers to the New World were confined to this category, incidentally noting facts of some value in comparative zoology and other sections of biology. Among these are books published by Oviedo (*Summario . . . dell'India occidentali*, 1535); José d'Acosta (*Historia natural . . . de las Indias*, frequently translated, 1st ed., 1590, Seville); Francesco Hernandez, physician to Philip of Spain, author of very important and well-known Americana (treatises on Central American flora and fauna), 1628–51; N. A. Recchi, another physician whose contributions to zoological history are enrolled in this Catalogue; the list ending with the works of still another physician, Guil. Piso, whose *Historia naturalis Brasiliae* and other works on the same subject (1648–58) are familiar to students of natural history.

Later, the Abbé Molina wrote his classic *Storia naturale del Chile*, the first edition of which was published at Bologna in 1782.

As previously mentioned, the same year (1555) that saw the appearance of Gesner's *Historia animalium*, including a discourse on birds, witnessed the publication of an illustrated *Histoire de la nature des oyseaux*, by Pierre Belon (1517–64). This writer's descriptions of birds were distinguished chiefly by an unusual attention to their internal structure as well by a description of their external appearances. He also compared avian with human structures and thus became one of the first of the comparative anatomists. Belon's works did not slavishly follow tradition; hence he avoided much of the medieval absurdity expressed in many earlier and some later publications. He adopted also a definite taxonomy, parts of which survive to the present day.

Newton (*Dictionary of Birds*, p. 6) speaks very favorably of the next important name on our list, that of Volcher Coiter, who published at Nürnberg in 1573 and 1575 two tractates embellished with well-executed cuts, in which the histology of bird structure is quite well described.

A physician named Caspar Schwenckfeld published at Liegnitz in 1603 a volume he called *Theriotropheum Silesiae* in which over 100 birds are described so accurately that they are readily identified.

It was in 1680–1 that Giovanni Borelli's *De motu animalium* appeared. This first edition (in the Blacker Library) is extremely rare, no copy being listed in the British Museum Catalogue (Nat. Hist.).

It was not until 1666 that Christopher Merrett printed the first edition of his *Pinax rerum naturalium Britannicarum*, a work of importance as it touches many sides of natural history.

In 1684 Sir Robert Sibbald published his *Scotia illustrata*, in which many of the fauna and flora of Scotland are depicted and described.

Despite the preponderance of medieval and other early books on the subject, *mammalogy* pure and simple has not, on the whole, excited as much literary interest through the ages as ornithology and probably not much more than ichthyology. As a consequence the treatises and periodicals on the first subject do not bulk as large on the shelves of most libraries devoted to natural history as do works on bird lore.

Ruminants naturally attracted the attention of early writers on domestic and general zoology. Johannes Aemylianus Ferrarensis in 1584 wrote a partial treatise on the subject while J. Geo. Agricola published two editions (1603 and 1617) on the deer and its use in medicine; and there are many others.

The horse and his allies have a still greater monographic bibliography to their credit;

many are the tractates dealing with equine anatomy and therapeutics. Several early Persian MSS. and printed books in the Blacker Library deal with this subject. In 1598 Carlo Ruini wrote a Book on the Horse that ran into several editions. The wild zebra was described about the same time by the voyagers Pigafetta and Thévenot.

Monographs on special zoological subjects began to appear at a relatively early date. We cannot do more than mention a few of the more important. Nicholas Tulp, Dutch physician, first described (*Observationes medicae*, 1641) the chimpanzee and other hitherto unknown animals; Wolfgang Waldung (*Lagographia*, &c., 1619) gave us an illuminating account of the biology of the hare; Jacob Thomasius furnished the first scientific account (*De Visu Talparum*, 1659) of vision in the mole; Olaüs Worm wrote a monograph (*Historia animalis quod in Norvagia*, &c., Hasniae, 1653) on the lemming, with anatomical figures; and there were published volumes too numerous to mention on such domestic animals as the dog and cat, a most interesting and important treatise being the original and admirable English monograph on the dog by John Caius (1510–73), various editions of which are shelved in the Blacker and other libraries of McGill. From the earliest times, by Persian, Indian, and European authors, the elephant has been a favorite monographic subject. Justus Lipsius, Gaspard Horn, and Joachim Praetorius, following the good example set by Petrus Gillius, described that pachyderm from personal observation.

There were several local histories published in America before 1700 that contain a few allusions to the fauna of the continent but these, in an elementary treatise like the present, may be ignored.

Among the important seventeenth-century writers on neotropical zoology, some of whom have already been mentioned, is George Marcgrav, who wrote much of the natural history portion of Johan de Laet's *Novus orbis . . . libri XVIII*, Lug. Bat., 1633. This important and well-trained medical mathematician contributed largely to our knowledge of the early zoology of South America.

The medical profession is further represented by several early adventurers to the New World, one especially deserving of mention, Jacob Bontius (1599–1631), a native of Holland, whose *Historia Naturalis* (1658) was published by Piso (q.v.). His explorations extended far afield as he also describes both the Mauritius Dodo and the Orang of Borneo.

CHAPTER IV

THE LITERATURE OF COMPARATIVE ZOOLOGY — THE SYSTEMATIC CLASSIFICATION OF VERTEBRATES — DARWINISM, ITS LITERATURE, ITS ADVOCATES, AND ITS CRITICS.

Galen—Vesalius—Ambrose Paré—Riolanus—V. Coiter—Fabricius ab Aquapendente—Severinus—Malpighi—Thos. Willis—Leeuwenhoek—Geraard Blaes—F. Redi—M. B. Valentini—Peter Camper—Alex. Monro—John Hunter—B. W. Hawkins—J. Leidy—Wiedersheim—W. N. Parker—C. A. Rudolfi—J. F. Meckel—Ducrotay de Blainville—Siebold and Stannius—A. A. Retzius—Everard Home—G. Germano—H. Milne-Edwards—St. George Mivart—Arnold Lang—J. W. Papez—R. W. Shufeldt—W. His—K. E. von Baer—H. C. Pander—E. R. Lankester—Charles Darwin—E. Haeckel—Kölliker—Remak—Anton Dohrn—G. Rolleston—G. J. Romanes—A. R. Wallace—Thos. Huxley—Edward Newton—Asa Gray—Herbert Spencer—H. W. Bates—Thos. Belt—C. Gegenbaur—E. Selenka—A. Willey—M. Fürbringer—The van Benedens—A. G. Butler—Ramón y Cajal—Altum and Landois—E. B. Poulton—Edward Forbes—A. Sedgwick—Gwyn-Jeffrys—Quatrefages—Alex. Agassiz—John S. Kingsley—Wyville Thomson.

WORKS on *comparative anatomy and zootomy* are fairly represented in this Catalogue. The earlier theses were mostly the records of work done by medical men who when interdicted from the dissection of human subjects turned to the lower animals for information on anatomy, physiology, and even psychology. Such authors and titles on comparative biology as are not catalogued here will usually be found in the *Bibliotheca Osleriana*.

Zootomy and live animal experimentation are, as every one knows, among the most valuable life-saving and productive present-day laboratory research works man can undertake. Preventive and curative medicine, zootomy, and zoophilosophy still march hand in hand, a procession albeit of meagre proportions as it began its journey with the first dawn of history.

In practice it commenced with Aristotle, Galen, Vesalius, Ambrose Paré, Eustachius, Fallopius, Riolanus, and many other names famous in medico-zoological literature. One notes that Volcher Coiter (Koiter, Koyter, or Coeiter) a Nuremberg doctor (already mentioned) presented almost the first important work on comparative anatomy, some details of which will be found in the annotated list of this Catalogue. The name of a contemporary of Coiter, Fabricius of Aquapendente, may properly be bracketed with him as the founder of comparative anatomy.

Mention has been made of Marcus Aurelius Severinus (1580–1656), professor of anatomy and surgeon at Naples. He wrote the first systematic treatise on comparative anatomy (*Zootomia Democritaea*, &c., Nuremberg, 1645, edited by J. G. Volckamer) entirely devoted to that subject. He made an effort to free his writings from the myths and doubtful observations of animal life that had accumulated in the literature of preceding centuries.

The discovery of the New World and its explorations furnished during the succeeding centuries many hitherto unknown specimens and much literary matter descriptive of animal forms. It was about this time also that certain early anatomists contributed accounts of their labors to the progress and history of comparative zoology. The chief of these, in addition to Fabricius and Severinus, were Harvey

(1578–1657); Malpighi (1628–94); Tyson (1649–1702); Swammerdam (1637–80), and Hooke (1635–1702), all of whose writings are represented in the accompanying Catalogue.

Thomas Willis (1621–75), Oxford professor of physics, is in some respects more important as a zootomic writer than most of his contemporaries, and his *De anima Brutorum*, London, 1672, must be mentioned here. Despite his false notions on the psychology of the (so-called) inferior animals, he is worthy of a place near the immortal Harvey.

The literature of comparative embryology is essentially modern and rests mainly upon microscopical observations, and yet, like other departments of zoology, it had its early beginnings. For example, Petrus Rommel wrote *De foetibus leporinis extra uterum repertis*, Ulm, 1680, and made sensible (comparative) comments thereon; and there are many other similar allusions in seventeenth-and eighteenth-century literature to this important science.

In the hands of Malpighi, Leeuwenhoek, and a host of later investigators the use of the microscope introduced systematic investigators to an entirely new world of scientific research.

As Victor Carus points out, the employment of alcohol, instead of the old methods of drying, rubbing with powders, &c. for the preservation of zoological specimens, greatly increased the number, variety, and value of museum collections everywhere and measurably advanced science.

Comparative anatomy thus encouraged advanced apace and numerous additional monographs on zootomy appeared—as the Compiler has already mentioned. A rather early and important treatise of this kind is the *Anatomia animalium* (Amsterdam, 1681) of Geraard Blaes, preceded in 1673 by the less important *Miscellanea anatomica hominis brutorumque*, &c., containing not only the writer's original observations but (illustrated) excerpts from other authors.

Among the brilliant comparative anatomists of the early eighteenth century was Francesco Redi whose seven-volume *Opere*, largely devoted to natural history, was published in 1712–30.

Another work of much the same scope is the *Amphitheatrum zooticum* of M. B. Valentini (1657–1729), professor of medicine in Giessen, almost an encyclopedia on the subject, and useful to-day as a work of reference. The figured anatomy of the American opossum and of many other interesting vertebrates is given; indeed this extensive work furnishes the best compendium of the numerous writings on comparative anatomy that appeared during the eighteenth century.

Reference to the literature of comparative biology (especially zoology) and its literary expositors shows that the labors of early (eighteenth century) writers on and investigators of lower animal anatomy uniformly improved upon the activities of their predecessors. Among these later scientists are J. N. Lieberkuhn, Peter Camper, John Hunter, and Peter S. Pallas.

Peter Camper (1722–89) was born at Leyden, graduated in medicine, and lectured at several Dutch universities. He is best known as the forerunner of modern craniology—Camper's facial angle is still in common use—and as a comparative anatomist who dissected the orang-utan and other higher apes and discoursed upon their comparative anatomy. He also published monographs on avian osteology, the structure of the ear in reptiles, fishes, and whales, and on the anatomy of the reindeer, elephant, and rhinoceros. He it was who, after a study of the anatomy of the human foot, condemned the footware of his period and suggested improvements on it.

In this connection, an early, noteworthy 'Arbeit' is J. F. Meckel's elaborate and well-illustrated anatomy of the Duck-billed Platypus, 1826; in it the famous surgeon described the flippers of this faunal paradox. An earlier work by Alex. Monro (1785) compared the structures of fishes with those of man and other animals.

Although they exercised some influence on

the progress of comparative anatomy the specific writings of Félix Vicq d'Azyr (*nat.* 1748) and of his teacher Condillac (1715–80) can have only a bare mention here.

We have had frequent occasion to speak of John Hunter but it is well to refer once more to that famous surgeon and naturalist. His father was a poor Scotch farmer. After a hard struggle to secure an education Hunter settled in London and devoted his time and energy to surgical practice, to anatomical studies, and to the establishment of the magnificent museum that is still the pride of the Royal College of Surgeons. Osler quotes an opinion of this remarkable genius from Buckle's *History of Civilization in England*: 'He was one of those extremely rare characters who only appear at very long intervals, and who, when they do appear, remodel the fabric of our knowledge. They revolutionize our modes of thought; they stir up the intellect to insurrection; they are the rebels and demagogues of science.'

Hunter's treatises on comparative anatomy show much originality of thought and are probably the most important contributions to the subject made during the eighteenth century. Of these works his *Observations on certain parts of the Animal Oeconomy*, 1786, has been several times reprinted and many times made the subject of comment and review.

Of the many other contributions to the subject our own Agassiz has written a monograph well worth the attention of the student, *The Structure of Animal Life*—six lectures delivered in 1866.

A minor contribution of some value is T. C. Eyton's *Osteologia Avium*, a 4to, with 113 plates. A more important treatise is B. W. Hawkins' *Comparative Osteology*, an atlas prepared under the supervision of Professor T. H. Huxley in 1864.

Among the long list of modern American teachers of paleontology and comparative anatomy stands the prominent figure of Joseph Leidy. One of his best known contributions to the former is his *Ancient Fauna of Nebraska*, 1854.

Of the many modern writers of textbooks on comparative anatomy none is surpassed by R. E. E. Wiedersheim, a translation of whose best edition (1886) was made in 1886 and in 1897 by the American zoologist W. N. Parker. The original work and its translations have passed through many editions.

Among the followers and successors of Cuvier, especially in the realm of comparative anatomy, was Carl Asmund Rudolphi (1771–1832) who, apart from his researches on parasites and his large work on general physiology (never completed), gave some attention to vertebrates, their cerebral and digestive organs, &c.

Even better known than Rudolphi was Johann Friedrich Meckel (1781–1833) whose studies in comparative anatomy are set forth in his *System der vergleichenden Anatomie.* He also developed a theory of evolution worthy to be mentioned with that of Lamarck, Wallace, and Darwin.

Among the early nineteenth-century exponents of comparative biology in France may be mentioned Henri Marie Ducrotay de Blainville (1777–1850). A native of Normandy and an enthusiastic pupil of Cuvier, he developed into a brilliant writer and teacher of the biologic sciences. He is best known in this connexion by his *Ostéographie* (on fossil vertebrates) and his *De l'organisation des animaux.*

Karl Theodor von Siebold (1804–85) and Friedrich Hermann Stannius collaborated to write a well-known treatise—it is something more than a textbook—a *Lehrbuch der vergleichenden Anatomie*, 1846, in which Stannius describes the vertebratae and Siebold the invertebrates. In this work especial attention is given to microscopical anatomy, in contrast to other pretentious works of the kind in which morphology is more or less neglected.

The pioneer comparative biologist of Sweden, as well as one of her foremost naturalists, was Anders Adolf Retzius (1796–1860), born in Lund. He studied under the foremost teachers of the day; indeed his work (and reports of it) on the Myxinoidiae formed the basis of

Johannes Müller's celebrated treatise, while his researches in anthropology are written into the records of modern craniologic terminology.

The anatomy of animals *per se* has a considerable literature of recent date, only a part of which can be mentioned here. Most authorities claim that Gerard Blasius (Geraard Blaes) was probably the first to publish an extensive work on the subject (*Anatomia animalium*, Amstel, 1681) made up of his own observations and illustrations incorporated with extracts from Malpighi, Willis, and others, ancient and modern.

That excellent work by Pander and Alton, the well-illustrated *Vergleichende Osteologie*, (1821–38) in two volumes, every good research library should possess.

More recent essays and treatises are accessible in considerable numbers. Among them is Sir Everard Homes's *Lectures on Comparative Anatomy*, 4 vols. (1814–23), and Supplement (1828), 2 vols., well illustrated and of great value to the student.

Another excellent and more modern work is George Rolleston's *Manual of Comparative Anatomy*, the second edition of which appeared in 1888.

Among more recent writers on the comparative anatomy of vertebrates (and of fauna in general) was John Sterling Kingsley; we note his *Comparative Anatomy of Vertebrates*, 2nd ed., 1917.

Of Henri Milne-Edwards (1800–85) the Compiler has elsewhere written. It may be added here that he was a native of Belgium but of English origin. A pupil of Cuvier, he came when quite a young man to Paris and became a professor there. In a treatise on the Crustaceae he worked out a system of comparative anatomy that still stands as a model for research students in zoology and other departments of biology.

Among the popular modern writers on comparative zoology was the celebrated Sir W. H. Flower. Of his many contributions to this department of natural science one thinks chiefly of his *Introduction to the Osteology of the Mammalia* (1870) whose third edition (1885) was written in collaboration with Hans Gadow.

There is not room at this time to do justice to the comparative and other natural history studies of St. George Mivart (1827–1900), some of whose works have elsewhere been mentioned and nearly all of whose treatises on vertebrate zoology are in the McGill libraries.

Of College textbooks the Compiler thinks very favorably of Arnold Lang's *Comparative Anatomy* (the English edition published in 1891–6), with a preface by Ernst Haeckel.

The science of *embryology* in the modern sense is a late development of scientific research. One of the earlier devotees of this branch of biology was Karl Ernst von Baer (1792–1876), a native of Esthonia. A good account of this erudite teacher and of his life and writings is given by Ludwig Stieda (q.v.). Baer's *De ovi mammalium genesi*, 1827, *Ueber Entwickelungsgeschichte der Thiere*, 1827, and 1837, are well known to advanced students. In these treatises Baer considers at length the development of the ovum in vertebrates.

Baer's successor at the University of Königsberg was Martin Heinrich Rathke (1793–1860), born in Dantzig. In his tractate, *Ueber die rückschreitende Metamorphose* he records the results of his researches in comparative embryology. He also wrote quite a few monographs on the vertebrates and on marine zoology.

Another pioneer (and associate of von Baer) in embryology was Christian Heinrich Pander (1794–1865). He was born at Riga of wealthy parents and was able to give his whole attention to his favorite study. His treatise, *Vergleichende Osteologie*, did not attract as much attention as his purely embryologic works.

Francis Maitland Balfour (1851–82) the brilliant younger brother of the celebrated Lord Balfour, whose early death, the result of an accident, cut short a most promising career, wrote a number of monographs—one on the development of sharks—but he is best known to science as the author of *A Treatise of*

Comparative Embryology, that furnishes the development of the embryo throughout the whole animal kingdom.

In 1929 was published an excellent treatise of 544 octavo pages, on *Comparative Neurology*, by J. W. Papez. It is a well-illustrated textbook dealing entirely with the brain and nervous system of the vertebrate classes and will be found extremely valuable to advanced students.

Very useful anatomical monographs on birds have been written by R. W. Shufeldt (q.v.), especially his *Myology of the Raven*, New York, 1890.

A Swiss embryologist of note was Wilhelm His (1831–1904), born in Basel, where he became professor of anatomy before he was transl~~ated~~ to Leipzig. He wrote, among other works, *Unsere Körperform*, Leipzig, 1874. A complete biography and bibliography of this naturalist has appeared in the *Anatom. Anzeiger*, vol. 25, pp. 161–208.

Another embryologist with a German name born outside the Fatherland is Alexander Wilhelm Goette (1840–1922) of St. Petersburg. He finally became professor in Strassburg. His chief work on vertebrates is *Die Entwickelungsgeschichte der Unke* (*Bombinator igneus*).

Of importance in this review of zoological literature are the writings of Oscar Hertwig (1849–1921) and his brother Richard (1850–1920), born in Friedberg-in-Hesse. The latter became professor of zoology in Munich, Oscar of anatomy in Berlin, and they both carried on valuable and original researches in embryology, including the development of the vertebrata. Oscar's *Allgemeine Biologie* (many editions, the 4th Jena, 1912) and Richard's *Lehrbuch der Zoologie*, Jena, 1890, are classic textbooks.

Much work on the *embryology of vertebrates* has been done in England. Prominent among these investigators is Edwin Ray Lankester (1847–1929), whose literary output has already been noticed. He gave much attention to papers dealing with the evolution of the articulata and pisces.

Darwin has been mentioned in several connexions. It may be added here that Charles Robert Darwin (1809–82) was born in Shrewsbury and married his cousin, daughter of the celebrated porcelain factor, Josiah Wedgwood. After a partial training in those rather opposed studies, medicine and theology, he interested himself chiefly in geology under Professor Adam Sedgwick. In 1831 he accompanied the *Beagle*, as unpaid naturalist, on her famous voyage round the world, and his scientific fortune was made. Despite the ill health that followed his retirement Darwin, then in affluent circumstances, worked persistently and chiefly on the evidence that supported his theory of evolution, the printed records of which immortalized his name. Although one does not find among Darwinia many purely zoological titles yet every student of the vertebrata and their literature should carefully read all the well-known works of Darwin on biology, especially his account of the voyage of the *Beagle*, just as one would absorb the *Natural History of Selborne* by another famous author who, in accord with the spirit of the modern scientist, 'kept his eyes steadfastly fixed on the truth, never casting side glances at the safety of his soul'.

Darwin soon had arrayed for and against him all the cohorts of the Church and many devotees of Science, the result being, *inter alia*, the publication of an immense mass of literature, generally controversial, most of which it is not the purpose of the Compiler to mention or catalogue, although a few of the more important, as they relate to vertebrate zoology, are on our list. It may be said, finally, as a solitary comment on the subject and as a sidelight on the spiritual poise and rare probity of the great naturalist, that the most valid objections to the conclusions of the *Origin of Species* are stated in the pages of that famous treatise.

Prominent among the advocates of the Darwinian theory was Ernst Haeckel of Jena who, seven years after the appearance of the *Origin of Species*, published his *Generelle Morphologie*, 1866. Two years later appeared his *Natürliche*

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Schöpfungsgeschichte emphasizing the extreme value of embryology as a guide to the development of species, classification, and nomenclature.

Early in the discussion of evolutionary schemes appeared Steenstrup's remarkable *Alternation of Generations*. See the Ray Society's reprint, 1845.

Mention has been made of the fact that German investigators were in the forefront of zoological research and literary production, and the names of Kölliker, Remak, and Kowalesky must be added to the foregoing list. These writers and several of the following authors took part in the discussion of the doctrine of evolution.

A very prominent and voluminous writer, especially on vertebrate fauna, was P. L. Sclater, who especially distinguished himself (in 1857) by correlating the known facts of the geographical distribution of animals.

In 1836 Henry Doubleday published a systematic list of British birds as a contribution to zoologic nomenclature. The original edition of this monograph is very rare, 'wanting' in the British Museum Catalogue.

A note must here be made of David W. Mitchell's *Genera of Birds* in three volumes, 1844–9, written in association with G. R. Gray.

An essay of importance from the evolutionary viewpoint is W. A. Herdman's *Phylogenetic classification of Animals*, 1885.

Because of its anatomical basis one must not forget George Rolleston's *Forms of Animal Life*, Oxford, 1870.

This is not the place to do more than refer by name to even the other prominent writers (and their publications) that have added to the literature of evolution; especially in Germany 'Darwinismus' was and is regarded as part of the teachings of those *Naturphilosophen* that include, with many others, the English naturalist, Erasmus Darwin (1731–1802); Lamarck (1744–1829); Geoffroy Saint-Hilaire (1722–1844); Oken (1799–1851); Goethe (see his *Zur Naturwissenschaft*, Stuttgart, 1817), and Treviranus (*Biologie*, 1802–5).

One of the minor opponents of the Darwinian theories was Wm. Bateson, a believer in the 'discontinuity of variation' who, in 1894, wrote his *Materials for the Study of Variation*, &c.

While the original doctrine of evolution (especially its main principle, the survival of the fittest in the struggle for existence) will require modification in the light of modern biology, its literature still remains as one of the most important parts of zoological studies, the chief titles of which will be found in the present Catalogue.

Among the opponents and critics of the Darwinian theory that have contributed noticeably to biological problems and their literature one may mention Richard Owen, Kölliker, Agassiz, Albrecht Wigand, von Baer, and Quatrefages de Bréau, with a passing reference to such scientific weaklings as S. Wilberforce, Bishop of Oxford, who may be regarded as the representative of that numerous array of theologians who hastened to don the ancient panoply of ecclesiastic warfare in defence of their medieval science. One of the best expositions of Darwinian theories is G. J. Romanes' *Darwin, and after Darwin*, 1892–7, in three volumes.

Of the many men of scientific attainment who became advocates and exponents of the theory of evolution in its several phases first place must be given to Alfred Russell Wallace, by many believed to be the co-discoverer of the great theory. Associated with him were such authorities as Lyell, Thos. Huxley (whose numerous contributions to the various departments of vertebrate zoology are listed in the Catalogue), Edward Newton, Asa Gray, Radl, Sir Joseph Hooker, and Herbert Spencer; indeed, both in England and in Germany—the two centers of biological progress—evolutionary theories and hypotheses were for many years dominant subjects of discussion in natural science.

One of the best of the recent reviews of the various branches that have grown out of the large trunk of Darwinism is Professor George Dorsey's *The Evolution of Charles Darwin*,

1927; but there are dozens of other similar studies, many of them more elaborate and profound, few of which can be mentioned here.

The centenary of Darwin's birth and the fiftieth anniversary of the publication of the *Origin of Species* was commemorated by the printing of a series of Essays edited by A. C. Seward, Cambridge, 1909.

A companion of A. R. Wallace in a journey round the world was Henry Walter Bates (1825–92). After a year of exploration Wallace returned to England, later to make his famous journey to the East Indian archipelego and to write the classic volumes listed in this Catalogue. Bates remained in Brazil and subsequently wrote that fascinating story, *The Naturalist on the River Amazons*, the first edition of which (in 2 vols.) was published in 1865.

Wallace made many contributions to zoology, a most important one being the account of his discoveries in animal geography. He was, in fact, a principal pioneer in the study of animal distribution on the earth's surface. It was the treatise that he wrote on the disposition of faunal life in Borneo, Lombock, and the Celebes, and which he submitted to Darwin, that impelled the latter to make a simultaneous reading before the Linnean Society in 1858, of his own and his friend's views on animal and plant struggle for existence and its effects on the origin and specific history of floral and faunal forms.

Thos. Belt in his *Naturalist in Nicaragua*, 1874, also furnishes many germane observations on animals and plants in reference to the theory of evolution.

Carl Gegenbaur (1826–1903), a well-to-do graduate in medicine and pupil of Virchow, taught in Heidelberg most of his mature life. Here it was that he wrote his textbooks, the *Grundriss* and *Grundzüge d. vergl. Anatomie*, 2 edns., 1859 and 1874, Leipzig. He worked in all the biological fields but towards the end of his career devoted himself to the vertebrata, especially to their embryology and comparative anatomy, as brilliantly exposed in his *Untersuchungen zur vergleichenden Anatomie der Wirbeltiere*, 4to, Leipzig, 1864–72. Still later he completed the celebrated *Vergleichende Anatomie der Wirbeltiere* (in several editions, 1898 and 1901 among them), which summed up the labors of a lifetime. This elaborate work served for a full generation as the textbook of what may be termed the (modern) Gegenbaur school of comparative anatomy.

The best known pupil and follower of Gegenbaur was Max Fürbringer (1846–1920) who followed his teacher from Jena to Heidelberg as prosector. He published a number of monographs, and will long be remembered by ornithologists for his monumental *Untersuchungen zur Morphologie und Systematik der Vögel*, 2 vols., 1888. This remarkable study of avian anatomy is an enduring superstructure built on the firm foundation of morphological research and it forms the basis of a rational classification of birds now universally accepted. This monograph also plays an important part in the indispensable Bronn's *Klassen u. Ordnungen des Tierreichs*, Vol. vi, Abt. 1–5 of which is wholly given up to the morphology of the vertebrate sub-classes.

The career of that brilliant apostle of *monism* and versatile exponent of the Darwinian philosophy in certain of its phases, Ernst Heinrich Haeckel, calls for further comment. His life dates are 1834–1919 and he was born at Potsdam. After a thorough grounding in biology (mostly under Johannes Müller) and medicine, he was, in 1862, called to the chair of zoology in Jena and held it until 1909. The influence of Haeckel on the progress of biology has been immense. Although he devoted most of his time and energies to research involving only the invertebrata his *Generelle Morphologie der Organismen*, 1866, and other works affect higher organisms more deeply than many a treatise with a purely zoological title. His extremely popular *Natürliche Schöpfungsgeschichte*, 1868, is known to English readers through the translation 'History of Creation'.

As a comprehensive and very important

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contribution to the embryology of vertebrates the student should know E. Selenka's *Studien ueber Entwickelungsgeschichte der Thiere*, in five volumes, 1883–92, continued after the author's death by several colleagues.

Modern instances of studies in faunal development may be found under the (present Catalogue) titles by Arthur Willey, professor of zoology in McGill University, among them *Amphioxus and the Ancestry of the Vertebrates*, 1894, with a preface by H. R. Osborn; also under various captions of the former's *Zoological Results*, 1898–1902. Doctor Willey has recently (1930) published a complete review of animal development in his treatise, *Lectures on Darwinism*.

The two (Belgian) van Benedens, father and son, demand some attention. The former, P. J. van Beneden, is the author, among other works, of a *Histoire naturelle des Delphinides des mers d'Europe*, 1889, 8vo, Bruxelles. The son—Édouard van Beneden (1845–1910)—was best known as a professor at Liége and the editor-publisher of the *Archives de biologie*. One of his earliest monographs is entitled *Recherches sur la Signification de l'Œuf*, 1870.

A very useful handbook is A. G. Butler's *How to Sex Cage Birds*, 1907, a research in which Maud Knobel (q.v.) and others have long been engaged.

Although the numerous classes of specialists in *modern cytology* undoubtedly follow a most important and interesting branch of biology having zoological relations, yet, as previously stated, the Compiler feels that he must draw the line when it comes to giving a review of their literary productions. In this connection the decided effect upon the progress of vertebrate zoology produced by the labors and writings of such tireless investigators as Bütschli, Flemming, Nägeli, William Bowman, Ramón y Cajal, Ehrlich, Nissl, Theodor Engelmann, Studnička, F. C. C. Hansen (and fifty others) will be acknowledged at once by the advanced student, but the story of their lives and literary products must be left to the bibliographer—more diligent and competent than the Compiler—to do full justice to all the subdivisions of historical biology.

A well-known and useful work of reference for the student is Altum and Landois' *Lehrbuch der Zoologie* that has passed through numerous editions and translations, one of them quite recent and up-to-date.

Incidentally, attention may be drawn to a work on an important physiological subject, E. B. Poulton's *Colours of Animals*, London, 1890. The same author has also collected and issued under the title of *The Hope Reports* (1897–date) valuable extracts and reprints from various journals on biological subjects.

One of the best known works on *Animal Intelligence* (and Behaviour) is the treatise of G. J. Romanes, 1883.

Studies of *marine fauna* have already been mentioned. The use as part of the equipment of scientific expeditions of the improved ocean dredge and trawl has provided abundant material for such investigators and writers as E. Forbes, Gwyn-Jeffreys, Norman, W. B. Caldwell, Adam Sedgwick, Bateson, the two Sarasins, Quatrefages, Denielsson, Alex. Agassiz, Carpenter, and Wyville Thomson.

CHAPTER V

TRAVELOGUES OF EXPLORERS — REPORTS OF VOYAGES AND SCIENTIFIC EXPEDITIONS CONTAINING DESCRIPTIONS OF VERTEBRATES — JOURNEYS OF NATURALISTS ROUND THE WORLD — GOVERNMENTAL AND PRIVATE SURVEYS AND EXPLORATIONS.

John Josselyn—José d'Acosta—The Voyages of Capt. Cook—L. A. de Bougainville—J. Byron—H.M.S. Hecla and Fury—The Uranie and Physicienne—H.M.S. Chanticleer—La Coquille—Voyage of the Astrolabe—H.M.S. Beagle—The Novara—Curaçoa—H.M.S. Alert—Challenger—Vega—Marchesa—Travailleur and Talisman—Wm. Dampier—Geo. Bennett—Geo. Barrington—The S.S. Investigator—The S.Y. Scotia—Horn Scientific Expedition—Voyages to the Antarctic of the Southern Cross and Terra Nova—Die zweite Deutsche Nordpolfahrt—U.S. Exploring Expedition under Wilkes—Second Yarkand Mission—Felix de Azara—P. Sonnerat—Peter Pallas—A. von Humboldt—Voyages round the World—La Pérouse—Azara and Rengger in the Southern Hemisphere—The travels of Prince Wied-Neuwied, Mikan, Natterer, J. B. Spix, F. B. Martius, Max Perty and Agassiz in Brazil—Reports of voyages to South America by d'Orbigny, Poeppig, Claude Gay, Tschudi, de Castelnau, Schomburgk, Burmeister, Louis Agassiz, Bates and Alfred R. Wallace—U.S. Astronomical Expedition to the Southern Hemisphere—E. H. Shackelton—La Belgica—Expeditions to Central America by Ramón de la Sagra, R. Schomburgk, Felipe Poey, Gundlach and Sallé—Early treatises on American Zoology by J. B. and Wm. Bartram, Thos. Jefferson, John Lawson, J. K. Townsend, B. S. Barton, R. Harlan, Gundlach, H. Sloane, J. B. Labat, Audubon and Bachman, J. E. Holbrook, J. V. G. Smith, David Humphrey, Rafinesque-Schmaltz and E. Hitchcock—Gran-Chaco Expedition—Natural History Expeditions to African Wilds—Voyages to Indo-China, Thibet, China and the South Seas—Scientific Explorations of South America, Alaska and Australia.

PRECISE identification of species as well as exactitude in describing them were greatly facilitated by the writings of those naturalist-explorers who collected specimens in their native habitat. These venturesome lovers of wild life, especially the early adventurers who penetrated into unknown areas of mountain stream, and sea, often at the risk of their lives, deserve a fuller mention than can be given them here; indeed the Compiler regrets that limited space will oblige him to omit even a passing reference to many accounts furnished by voyagers over wide oceans and across continental stretches who gave reliable descriptions of fauna that have added measurably to the literature of zoology.

As will be further noted, nineteenth- and twentieth-century travelers with some knowledge of natural history generally devoted a chapter or two to the fauna of the localities visited, and often furnished trustworthy lists of birds and other animals previously unknown to science.

As the Compiler's own continent was among the first to be systematically explored he will speak of some reports of travels in and of a few expeditions dispatched to that quarter of the world.

The earliest English work on American natural history in general resulted from two visits between 1638 and 1671, made by John Josselyn. Several editions of his *New Englands rarities*, in the McGill libraries, are of the greatest interest to the student.

Perhaps Josselyn was stimulated to give these experiences by the voyages of José d'Acosta, whose *Historia natural de las Indias*, &c., appeared at Leon in 1590, with an English translation, 1604.

One thinks naturally of the published explorations of the Hakluyt Society, of Captain James Cook, especially of the zoological observations of the latter made in H.M.S. 'Endeavour', 'Resolution', 'Adventure', and 'Discovery', and of a hundred other adventurers about which so many volumes have been written.

Although it is not the purpose of the Compiler to mention or attempt an evaluation of all the numerous naval expeditions (governmental and private) that, especially during the nineteenth century, engaged in every form of zoological research, it is thought desirable to draw attention at this juncture to a few not already described. The student will find a selection of these in the Index and a much larger and usually annotated list in the Catalogue, where they are entered under the name of the vessel or vessels engaged in the work, under the name of the commander of the expedition, under the name of the zoologist or zoologists on board, or under all three captions.

A famous early naturalist-explorer was L. A. de Bougainville whose *Voyage autour du monde par 'La Boudeuse et l'Étoile'*, 1766–9, was the first important expedition of his long career; another is the *'Resolution' Voyages*.

Among early scientific voyages is J. Byron's expedition in H.M.S. 'Dolphin', 1764–5, reports of which are given in several editions and their translations into foreign tongues, but perhaps the most important of the early nineteenth-century voyages are the following: that of the 'Hecla and Fury', 1818–28, W. E. Parry; of the French expedition in the 'Uranie' and 'Physicienne', 1824–6, associated by naturalists with the name of Louis de Freycinet; the voyage to the Southern Atlantic of Webster in H.M.S. 'Chanticleer', 1828–30; the expeditions of the 'King George and Queen Charlotte', 1826, in connection with which are coupled the names of George Dixon and Nathaniel Portlock; and of 'La Coquille', Louis I. Duperry, 1826–30.

The famous voyage of the 'Astrolabe', 1830–35, is intimately associated with the valuable scientific work of J. S. C. Dumont d'Urville who later (1842–54) made several voyages in the 'Astrolabe' and 'Zélée'. Darwin's world-famous expedition in the 'Beagle', 1838–44, has already been mentioned.

These voyages and the reports on their zoological discoveries were followed in quick succession by many other important events of like character, e.g. the famous voyage of the 'Thetis and Espérance' (1837) associated with the familiar name of Louis A. Bougainville; after which came the subarctic voyage of the 'Recherche', then that of the well-known 'Blossom', Capt. F. W. Beechey, in 1839; then the second voyage of 'La Coquille' in the same year, coupled on this occasion mainly with the fame of the ornithological and other reports of R. P. Lesson; also during 1839 the voyage of 'La Favorite' and the name of C. P. T. Laplace. These were followed in 1841–52 by the expeditions and discoveries of 'La Bonite' so well reported by the famous Auguste Vaillant; by the voyages (1843–4) of the 'Sulphur' and Richard B. Hinds; by the valuable discoveries made by Arthur Adams and others during the voyage of the 'Samarang', 1843–6, and the many adventures (1844–75) of the famous 'Erebus and Terror' (elsewhere mentioned) under the scientific aegis of Sir John Richardson and John E. Gray.

In 1852 John Macgillivray described the birds of the 'Rattlesnake' voyage to New Guinea, &c.

Shortly before this a privately conducted expedition was made to the Far East (see

Voyage dans l'Inde, by Victor Jacquemont) whose zoological aspects were, in part, reported by Isidore Geoffroy Saint-Hilaire, while J. B. Juke's name is associated with the voyage of H.M.S. 'Fly' during 1842–6, the *Narrative* dated 1847. Between 1846–55 took place the scientific expeditions of the 'Vénus', for reports of which we are mainly indebted to Abel A. du Petit-Thouars. Specially valuable for geographic and distributional records were the voyages (1852–4) of the 'Herald', noted by Edward Forbes.

The next important marine expedition was that of the 'Novara' in 1865, associated with the name of the Austrian commander, B. von Wüllerstorf-Urbair. In 1880–3 the *Expéditions scientifiques du Travailleur et du Talisman* furnished mainly marine records.

In the year 1873 the voyage of the 'Curaçoa', under the scientific care of Julius L. Brenchley, discovered many new zoological species. Although not published until 1884 the *Report on the Zoology of H.M.S. 'Alert'*, 1881–2, was issued by the British Museum; not, of course, to be confused with the voyage of the 'Alert' and 'Discovery' to the Polar Sea in 1875–6, when H. W. Feilden described the mammals and birds and A. Günther the fishes.

The next most important scientific expedition was the famous voyage (1881) of the 'Challenger' under C. Wyville Thomson, the zoological reports of which fill many valuable volumes. Six years later (1887) Michael A. Healy directed the expedition of the 'Corwin' and about the same time the 'Vega' sailed round the northern world, the reports of whose scientific work are mostly furnished by N. A. E. von Nordenskiöld in several editions and languages. The year before (1886) F. H. H. Guillemard made many valuable observations and discoveries during the well-known voyage of the 'Marchesa', and the reports of that expedition are among the fundamental treatises of systematic zoology. In 1888 Alphonse Edwards described the scientific expedition of the 'Travailleur' and the 'Talisman', 1880–3.

The student of zoological literature should by all means familiarize himself with the reports of these scientific expeditions that registered for the first time definite knowledge of much of the world's natural history.

Australasia and Oceania in general have always been favorite exploration areas for seafaring explorers—naturalists in particular. William Dampier (1652–1715) was among the best known of these adventurers and his voyages around the world included an expedition to New Holland in 1699.

At this point may be mentioned, among notable voyages, the several visits of the naturalist George Barrington to New South Wales and his account of them, published in 1795–1802.

A combined history of voyages interesting to naturalists is the first edition, in four volumes, of John Hawkesworth's *Account (1773) of the Voyages of . . . Commodore Byron* (1764–6); *Wallis* (1766–8); *Carteret* (1766–9), and *Cook* (1768–71).

More recently A. W. Alcock under the caption *A Naturalist in the Indian Seas*, 1904, reported on collections made in the Survey Ship 'Investigator'.

Wagner's *Reisen in Algier*, 1841, resulted in large collections of birds and mammals which he described, while H. Schlegel reported on the amphibians.

As elsewhere shown, the numerous expeditions and voyages dispatched by the Federal Government of the United States to all parts of the world (including the American continents) as well as the exploration parties sent out by the many Departments, Bureaux, and Surveys, both of the central government and of the various states, have furnished hundreds of reports on vertebrate zoology. The present Index and the annotated Catalogue have listed them, mostly to be found under the caption *United States*. In some instances these valuable contributions to natural history have been published separately, in which case such 'author's editions' are also entered under the name of the writer.

The birds and mammals of Alaska collected by the McIlhenny expedition to Point Barrow in 1900 are fully described by Witmer Stone.

Among the more recent expeditions is that of the Steam Yacht 'Scotia' during 1902–4, under the auspices of the Scottish Oceanographical Society. See 'Scotia' in this Catalogue.

George Bennett (1804–93) was an intrepid and instructed explorer-naturalist who in 1834 published an account of his *Wanderings in New South Wales Batavia*, &c., in two illustrated volumes as part of his journeys around the world. In 1860 he issued from London an amended history of his *Gatherings throughout Australasia*, in which he describes many vertebrates.

An important exploration of Central Australia is the Horn Scientific Expedition, whose reports were edited in 1896 by Baldwin Spencer, the vertebrate zoology being described by specialists.

Among the explorations best known to systematic zoologists is John Whitehead's Expedition to North Borneo (1893) productive of many species new to science.

One of the most valuable reviews of the fauna of New Guinea is found in C. E. A. Wichmann's *Nova Guinea*, whose as yet unfinished publication (in French and Dutch) began in 1906.

One of the most successful voyages to the Antarctic regions from the viewpoint of vertebrate zoology was that of the 'Southern Cross'. In 1910 the 'Terra Nova' made a somewhat similar voyage under another commander, Capt. R. F. Scott. See Br. Mus. Cat. (Nat. Hist.).

Trevor-Battye's *Ice-bound in Kolguev*, 1895, furnishes 'a chapter in the [natural history] exploration of Arctic Europe' well worth reading.

Although comparatively little space was given to vertebrate zoology in the early volumes of F. Nansen's *Norwegian North Polar Expedition*, 1893–6, yet R. Collett's and F. Nansen's brief account of the Birds must be mentioned.

More productive of literary effort are the reports on *Die Zweite Deutsche Nordpolarfahrt . . . in 1869 und 1870*, edited by G. Hartlaub and M. Lindeman, when the anthropology, mammalogy, ichthyology, and ornithology of the expedition were fully described.

A more recent North Polar Expedition for scientific purposes is the Austrian *Internationale Polarforschung*, 1882–3, when the collection of vertebrates was described in a three-volume report.

Die Preussische Expedition nach Ost-Asien, whose *Zoologischer Theil* was edited by E. von Martens in 1867–76, is also to be borne in mind.

The *Narrative of the U.S. Exploring Expedition around the World* under Capt. Charles Wilkes, 1838–42, is of considerable importance in scientific literature. Chas. Pickering, J. P. Couthony, Jas. D. Dana, Titian R. Peale, and Horatio Hale gave accounts of their special activities in the *Reports of the Scientific Results*. The first edition (now extremely rare) of this government expedition was published in 1844; a new edition, New York, 1856, was printed in five volumes, with additional text and plates.

One of the outstanding examples of worthy contributions of travelers to science is E. Diffenbach's *Travels in New Zealand*, 2 vols., 1843, in which the mammalia, reptiles, and amphibia are described by J. E. Gray, the birds by G. R. Gray, and the fishes by J. Richardson.

One of the best known Asiatic scientific expeditions was that of the Second Yarkand Mission, 1878–91, the collections of which were examined by specialists; Blanford, mammals; R. B. Sharpe, birds; F. Day, fishes, &c.

The majority of naturalist-travelers to the New World seem to have visited South America during the past two centuries, so many indeed that there will be space for mentioning only a small proportion of them.

Don Felix de Azara (1746–1811), an engineer of noble birth, was detailed by the Spanish Government to delimit the frontiers of Paraguay. He devoted much of his time to impor-

tant observations of South American fauna, part of which is reported in his *Apuntamientos para la Historia natural de los Quadrúpedos*, &c., 2 vols., Madrid, 1802. There is a French translation of this valuable work by Moreau de Saint-Méry, also in 2 vols., Paris (1801). Azara lived 20 years in South America, during which period he wrote further accounts of Central and South American fauna. This work was published after his death by C. A. Walckenaer; there is, also, a French translation by Sonnini, 1809, in four 8vo vols., and a folio atlas.

Some of the best known expeditions to the Far East were those of Pierre Sonnerat who visited (and described the natural history of) China, Papuasia, Ceylon, the Philippines, &c. between 1774 and 1781.

The collections of vertebrates made during Zichy's *Dritte Asiatische Forschungsreise*, 1901, were described by well-known naturalists.

As several times indicated, our early knowledge of Russian fauna is largely due to the labors of Peter Pallas whose journeys to various parts of the Empire have been described in several languages. These publications are to some extent listed in the present Catalogue, attention being especially called to his *Reise durch verschiedene Provinzen des Russischen Reichs*, &c., 1771–6, in three volumes and to his three-volume quarto entitled *Zoographia Rosso-Asiatica*, 1811–42, completed long after his death. Peter Simon Pallas was born at Berlin in 1741, and in 1768, having acquired an international reputation as a naturalist, was invited by the Empress Catherine to St. Petersburg. He spent six years (1768–74) in explorations of both European and Asiatic Russia, collecting an enormous array of scientific (mostly zoologic) specimens which formed the basis of many ethnic, geographic, floral, and faunal treatises. He finally settled in the Crimea and died there in 1811.

In 1799–1804 Alex. von Humboldt and Aimée Bonpland visited South America. The original German account of the expedition (in the Blacker Library) was translated and issued in 2 vols., 57 plates, under the title *Recueil d'Observations de zoologie et d'anatomie comparée; faites dans l'Océan Atlantique*, Paris, 1811–32. This record is not only remarkable for the faithful description of the animal life encountered during the voyage but is noted for the discovery of many new species.

The Compiler has drawn frequent attention to the many *Voyages autour du Monde* listed in the appended Catalogue as productive of much of our literature on vertebrates. Of these circumnavigations that of Count La Pérouse in 1785–8 is among the best known. It is also well to read Labillardière's *Three Years' Voyage in search of La Pérouse*, either in the original or in the English translation.

Prince Maxmilian of Wied-Neuwied wrote a *Beiträge zur Naturgeschichte von Brasilien*, four octavo volumes, giving a classic account of his travels in that state and neighbouring countries during 1815–21. The work was translated into French and published, like the German earlier edition, in Weimar. Among the many other naturalists who have visited Brazil and described its flora and fauna are J. E. Pohl, who gave his attention almost exclusively to botany; J. C. Mikan (1769–1844), author of *Delectus florae et faunae Brasiliensis*, 1820–5; Johann Natterer, who wrote *Zur Ornithologie* (and *zur Säugethiere*) *Brasiliens*, 1868–71, as the result of *Reisen* in that country, while J. B. Spix and Carl F. P. Martius, under the patronage of King Max Joseph of Bavaria, visited Brazil and spent three years there, recording their floral and faunal discoveries under several titles, that of Martius being (*Eine*) *Reise in Brasilien*, 3 Tle., München, 1823–31. Spix (1781–1826) was born in Hochstaedt, and died in Munich; he studied first theology and afterwards medicine.

Martius, born in Erlangen, son of a chemist, was ennobled for his scientific services and died also in Munich. Spix wrote a series of monographs describing many species new to science in the whole animal kingdom. The titles of this series are uniform, e.g. *Serpentum Brasiliensium Species novae*, 1 vol., 26 col.

pl. They are all listed in the accompanying Catalogue.

In 1820–1 Prince Max of Wied-Neuwied (1782–1867) visited Brazil and in 1832–4 North America, when he made a study of their flora and fauna. See the annotated titles in this Catalogue.

Accounts of many hitherto undescribed Brazilian fauna are also given by Max Perty (the invertebratae in *Delectus animal articul.*, 1830–1, 40 col. pl.) and by Agassiz, who specially studied the fishes (*Selecta genera et species piscium*, Monachii, 1829–31, fol., 100 pl.).

Johann R. Rengger (1795–1832), who was born and died in Aarau, spent eight years in South America and has given us a noteworthy account of the mammals of Paraguay (*Naturgesch. der Säugethiere von Paraguay*, 8vo, 1830, Basel).

One should not forget that among the earliest travels of Alfred R. Wallace was his exploration of the River Amazons, a description of whose natural history he published in 1853.

During 1826–33 Alcide Dessalines d'Orbigny (1802–57) the well-known professor of paleontology at the *Jardin des Plantes*, visited South America and wrote an account of his travels and discoveries that is a classic of zoologic literature (*Voyage dans l'Amérique Méridionale*, &c.). This large quarto was published in 90 parts illustrated by means of 415 plates. It usually appears bound in 7 volumes text and 2 volumes in atlas form. D'Orbigny's contributions to the literature of the British Museum collections (shells, molluscs, &c.) are even better known to students.

From 1854 to 1885 appeared numerous original monographs in German, Spanish, French, and English, describing the zoology of travels to various countries in South America by the famous naturalist C. H. C. Burmeister, especially to Argentina and Brazil. In passing, one may also call attention to Edward Whymper's *Travels amongst the Great Andes*, 1892.

Eduard Friedrich Poeppig (1798–1868) wrote a picturesque account of his travels in the Americas that began with such high spots as Philadelphia and Cuba and ended in Peru, Chili, and the Amazon Rivers. In it (*Reise in Chile, Peru, &c., 1827–32*, 2 vols., and atlas of 16 plates, fol., Leipzig, 1835–6) he gives a brief review of the fauna.

Of much value is the scientific description of Chilean natural history afforded by the writings of the French author Claude Gay (1800–73). The best of his works, of which Gay acted largely as editor, was published by the Government of Chile. It is the monumental *Historia fisica y politica de Chile*, &c., in 28 vols. text, and 2 vols. atlas. Of the eight volumes devoted to zoology, the mammalia are treated by Gay and the aves by O. Des Murs. The evertebrata, botanica, and other subjects are voluminously considered by numerous collaborators.

A useful treatise on the zoology of Peru is J. J. von Tschudi's *Untersuchungen ueber die Fauna Peruana*, &c., 1844–7, 4to, St. Gallen, the result of a five years' residence in South America.

Count Francis de Castelnau (1812–80) published in 1847, under French Government auspices, a most valuable report (*Expéditions . . . pendant les années 1843–7*, 180 pl., 14 vols., Paris) on the zoology of portions of South America, the result mainly of expeditions from Rio Janeiro and Lima. Accounts of the zoology are furnished in three quarto volumes.

In 1863 appeared the first edition of that much reprinted classic, Bates's *The Naturalist on the River Amazons*. It should be carefully read by every student of South American natural history.

In various connections the *Schwedische Südpolar-Expedition* (1901–3) has had references, especially to the names of A. J. E. Lönnberg (aves and pisces) and K. A. Anderson (the higher animals in general).

In 1909 was published E. H. Shackleton's *Heart of the Antarctic* in two volumes, giving an account of discoveries made during the voyage of the 'Nimrod', 1907–9. J. Murray edited the

Biology of the expedition which was not fully reported until the *Reports of the Scientific Investigations* were made (a second edition) in 1911.

The scientific expedition of the Belgian 'La Belgica' to the South Pole in 1897–9 did not gather many vertebrates, except pinnipeds, cetaceae, and marine fishes. The reports were published in 1901–13.

In 1902–3 the *Deutsche Süd-polar-Expedition* reported its *Bericht* on the natural history of the 'Gauss' voyage.

Robert Hermann Schomburgk was born at Freiburg near Rossbach in 1804. In 1831 he made a scientific survey of the Virgin Islands where he was established as a merchant. During 1831–5 he explored and reported upon (see his treatises on the subject) British Guiana on a commission from the Royal Geographical Society. In the latter country he discovered the magnificent Victoria regia lily during a trip up the Berbice River. He was knighted in 1844. In addition to his various scientific works on British Guiana he published a very useful *History of Barbados*, and after holding several offices under the British government he died in 1865 at Schöneberg, near Berlin. He accompanied his brother Richard on several exploratory expeditions.

As previously mentioned, one of the best reviews of the fauna of northern South America was written by Richard Schomburgk. His valuable *Reisen in Britisch-Guiana in den Jahren 1840–44*, Leipzig, 1847–8, has, in part, been translated into English (1922) by the Compiler's friend, Walter Roth, the Director of the British Guiana Museum.

Another valuable contribution to the literature of South American fauna is the *Physikaische Beschreibung der argentinischen Republik*, 5 vols., 1875–80, Buenos Aires, by Carl Hermann Burmeister (1807–92), the accomplished naturalist and traveler. A French translation of this important work was made by E. Maupas and E. Daireaux, Paris, 1876–86.

A later report of value (already referred to) is Louis Agassiz's *Scientific Results of a Journey in Brazil*; the Thayer Expedition, 1870.

One of the most recent exploratory expeditions for natural history purposes is that to the Gran Chaco area (Argentine, Bolivia, and Paraguay). A volume on the bird-life of that important section of South America has been written (1930) by Prof. Alfred Laubmann of München. Other volumes are in the press.

Not to be passed over lightly as a contribution to the faunal history of Central South America is *Travels on the Amazon and Rio Negro*, 1870, by Alfred R. Wallace.

An earlier but even more valuable addition to our knowledge of South American fauna are the reports of what is generally known as the *U.S. Naval Astronomical Expedition to the Southern Hemisphere . . . 1849–52*, under Lieut. J. M. Gilliss, 6 vols., published by the government at Washington, 4to, 1856. The vertebrata are treated (in vol. ii) by S. F. Baird (Mammals); J. Cassin (Birds), and C. Girard (Reptiles and Fishes).

The various reports of the famous Wilkes U.S. Exploring Expedition during 1838–42 have been fully discussed elsewhere in this Introduction. A photostat copy of the extremely rare *Narrative* of 1845 is shelved in the Blacker Library. See the appended Catalogue.

The well-known *Historia fisica* of Ramon de la Sagra (director of the Botanical Gardens in Havana) dealing, *inter alia*, with the fauna of Cuba, has been touched upon elsewhere in this Introduction. A French translation of this important work was published in 1840–58.

Another naturalist, Felipe Poey (1799–1891) wrote *Memorias sobre la historia natural . . . de Cuba, Habana*, 1851–8.

The first local work of importance, i.e. listing any considerable fraction of faunal life of the United States, is John Lawson's *Description and Natural History of North Carolina*, that went through several editions between 1728–1860. Of considerable importance is John Kirke Townsend's (1809–51) *Narrative of a Journey across the Rocky Mountains*, Phila., 1839, in an appendix to which the quadrupeds and birds found in the territory of the Oregon

are catalogued. There are also notes on the fauna of the Sandwich Islands, Chili, &c. A London edition, illustrated, in two volumes, was issued with a title somewhat different in 1840. Both works are rare.

Of early examples of these expeditions one may mention here that in 1675 Friedrich Martens described his *Voyage au Spitzberg et au Groenland*; in 1658 de Rochefort published his *Voyage aux Antilles*: the expedition of Boccone was undertaken in Sicily, 1674; Guillaume Bosman made a *Voyage aux Côtes de Guinée*, in 1704; in 1707 Hans Sloane described his *Voyage to the West Indies* (1707) including Madeira, in which he describes the flora and fauna of these islands; we note, also, the travels of Scheuchzer in Switzerland, 1708, in 2 vols., with extracts translated into Latin and French.

Reference has also been made to the valuable monographs of Gundlach on the vertebrate orders of Cuba, and published separately, 1872–93, by the *Sociedad española de historia natural*, Madrid.

During 1796–8 Ledru and Sonnini visited and described the natural history of the Virgin Islands and Porto Rico.

Auguste Sallé (d. 1896) described, in conjunction with E. Parzudaki, a collection of birds made by the former under the title *Catalogue des Oiseaux du Mexique*, &c. (Paris), 1862, a useful but rare pamphlet.

The two Bartrams, John B. (1699–1777) and William (1739–1823), published interesting contributions to North American zoology. The former traveler furnished *Observations . . . on the Animals . . . of Pensilvania* (sic) &c., London, 1751. William Bartram gave us *Travels through North and South Carolina, Florida*, &c., Phila., 1791. The original manuscript of this work and the drawings of the plants and animals to illustrate it are among the treasured items in the library of the Botanical department of the British Museum.

Several references have been made to Mark Catesby's *Natural History of Carolina, Florida*, &c., folio, 2 vols., 1731–43, with an English (1771, Edwards) and a German annotated edition (1749, Seligmann). This treatise with its early colored plates should be 'seen' by every student of American zoology.

Benjamin S. Barton's *Fragments of the Natural History of Pennsylvania*, 1799, is also regarded as a basic contribution to the study of American zoology. This rare folio was reprinted by the Willughby Society, 1883.

J. B. Labat's *Nouveau Voyage aux isles de l'Amérique*, 1722, is important owing to the natural history of the West Indies to be found in its six small volumes.

Two early and important works on vertebrate zoology are to the credit of Richard Harlan (1796–1843): *Fauna Americana; being a description of the Mammiferous Animals inhabiting North America*, &c., 4to, Phila., 1825; and *American Herpetology*, Phila., 1827. The still more important *Viviparous Quadrupeds of North America*, by Audubon and Bachman, in 3 vols. text and 3 vols. atlas, 1846, followed by the edition of 1854, has been noted elsewhere in this work.

One should not overlook the chapters on American birds in M. J. Brisson's *Ornithologia* (1760) elsewhere noted. It is a splendid example of good work, with 261 plates, but unfortunately giving only mononomes of the fauna. Here, too, mention must be especially made of John R. Forster whose rare tractate, *A Catalogue of the Animals of North America* (1771), contains the first scientific mention of many new species.

A rather early effort to describe animal life in the New World is Godman's *American Natural History*. The third edition is dated 1836, Phila.

Thomas Jefferson printed (1782 and 1787) his classic *Notes on the State of Virginia*, with a fair account of its flora and fauna.

Of the greatest interest to us are the accounts of Captain Cook's three voyages that with the observations of the two Forsters, William Ellis, Hunter, John White, Phillips, and others furnish intimate descriptions of the flora and fauna of Oceania.

It would not be out of place for the student

to read at this juncture Frank Chapman's study of Panama Zone wild life, *My Tropical Air Castle*, 1929.

Among other local travelogues is Hudson's fascinating *Naturalist in La Plata*.

Too much importance cannot be attached to Vieillot's *Histoire naturelle des Oiseaux de l'Amérique Septentrionale*, 1807, 2 vols., folio. Coues regards this and the author's other contributions to the subject of almost as much importance to American ornithology as Wilson's treatises.

Another reference should be made to the scattered but valuable contributions to American zoology of that versatile genius and original observer, Constantine Samuel Rafinesque-Schmaltz (1783–1840), best known to American readers as Rafinesque who, born in Galata, Sicily, died in Philadelphia. He wrote, among other monographs, *Ichthyologia ohiensis*, &c., 8vo, Lexington, Ky., 1820, a very rare treatise reprinted, with a life and portrait of the author, by R. E. Call, Cleveland, Ohio, in 1899. He also published the *Atlantic Journal and Friend of Knowledge* that appeared in eight numbers, 1832–3, complete sets of which are very rare.

The zoology of the expedition under W. H. Keating to the Canadian Lake of the Woods in 1823 is described in a valuable report by Thomas Say in 1825.

In 1822 W. E. Cormack explored Newfoundland and wrote his *Narrative*, an interesting account of the flora and fauna, edited by Bruton and published in 1928.

East African zoology is well represented in the *Zoologische Ergebnisse* of an expedition by F. L. Stuhlmann undertaken during 1888–90, 2 vols., Berlin.

The mammals and birds of Somaliland are described by P. L. Sclater and others in F. L. James' *The Unknown Horn of Africa*, London, 1888.

A good account of west-central African natural history (including its vertebrate zoology) is given by L. S. Schultze in his *Zoologische Ergebnisse*, 1908–13, the result of travels in 1903–5.

In 1913 C. A. Alluaud described the fishes of Lake Victoria Nyanza collected during an expedition to East Africa.

Another valuable contribution to our knowledge of East African vertebrates resulted from the Swedish Zoological Expedition to Kilimandjaro in 1905–6, 3 vols., 1910. See Sjöstedt, B. Y., in the present Catalogue.

Adolf Friederich, Duke of Mecklenburg, headed an expedition into Central Africa in 1907–8 and his report furnishes a valuable account (1910–14) of the flora and fauna of that area.

Students of the natural history of Siam and French Indo-China should read A. H. Mouhot's *Travels* in those countries during 1858–60, two illustrated volumes, London. A. Günther describes in it many new species of mammals, reptiles, and freshwater fishes.

As part of the reports (*Décades Zoologiques*) of the *Mission Scientifique &c. Indo-Chine*, a systematic account of its vertebrates is published, 1905–7.

Another report on Chinese vertebrates (some new species) is found in A. E. Pratt's *To the Snows of Tibet through China*, 1892.

A good account of the mammals and birds of Manchuria is found in P. L. von Schrenck's *Reisen im Amur-Lande in 1854–56* that appeared in St. Petersburg during 1858–1900.

For several years past the Payne-Whitney Expedition and several other less important voyages of American vessels have been made to the South Seas. The former has carried on a most excellent and extensive collection and exploring work under the direction of Mr. Rollo Beck and his assistants, supervised by the American Museum of Natural History, New York. Dr. Cushman Murphy of that institution has in charge the specimens collected during the voyage of 'La France' and other vessels in the employ of the expedition and these appear mostly in the publications of the Museum.

The various Reports of the Princeton University Expeditions to Patagonia, 1896–9, include an account of the Mammals by J. A.

Allen; Batrachiana and Reptiles by L. Stejneger; Fishes by C. H. Eigenmann.

The vertebrate zoology of northern South America is to some extent described in André's *A Naturalist in the Guianas*, 1904.

A charming account of a naturalist's adventures is Hans Gadow's *Through Southern Mexico*, well illustrated, 1908.

A publication of considerable scientific importance is the *Fasciculi Malayenses*, an account of material, including vertebrates, collected by T. N. Annandale and H. C. Robinson during an expedition to Perak and the Siamese Malay States in 1901–2.

The vertebrate zoology of North China is in part described by A. de C. Sowerby in *Through Shên-kan* (1912).

A noted traveler-naturalist was A. L. Adams, accounts of whose interesting wanderings in India, Egypt, and Canada (1867–73) are separately recorded and shelved in the Blacker Library.

A readable story of South American travels is Ball's *Notes of a Naturalist*, published in 1887.

In 1867–9 Dall and Bannister published a locally important *List of the Birds of Alaska*.

The list of expeditions to and travels in Australasia is (as noted) a long one. In 1849 Charles Sturt published an account of the natural history of Central and South Australia as a result of explorations made 1844–6. Among the more recent contributions one notices Saville-Kent's *Naturalist in Australia*, and Semon's *In the Australian Bush*.

CHAPTER VI

FORERUNNERS, CONTEMPORARIES, FOLLOWERS, AND SUCCESSORS OF LINNAEUS—A SHORT ACCOUNT OF LINNAEAN LITERATURE—FAUNAL CLASSIFICATIONS AND NOMENCLATURE.

Ray—Linnaeus—Sherborn—Peter Artedi—Duméril—Hasselquist—P. Forskål—P. Kalm—D. Solander— J. C. Fabricius— C. P. Thunberg—Erxleben—Rumphius—J. T. Klein—M. J. Brisson—Rafinesque—Möhring—W. Turton—T. E. Bowdich—J. R. Forster—Swainson—G. L. L. de Buffon—L. Daubenton—A. von Haller—Charles Bonnet—Spallanzani—Fitzinger—J. M. Bechstein—P. S. Pallas—J. W. von Goethe—J. Fleming—L. Oken—J. B. Spix—K. G. Carus—Max Weber—Louis Agassiz—Geo. Shaw—Vigors—Baird—Nelson—Richmond—Merriam—Gill—Allen—Coues—Ridgway.

THE literature of *faunal classifications*, mostly controversial, may be said to have begun with Pliny and Aristotle, and having been touched upon vaguely here and through succeeding centuries by more or less original investigators, finds its first universally recognized authority in the truly great Linnaeus. It is needless to say that this Introduction has little to do with these currents and backwaters of zoological history; it is enough to mention the chief monographs (and their writers) that make up the literature of the subject. The Compiler has already mentioned most of the proponents of this, that, or the other *system*, and it remains to be said that the wordy warfare that has gone on for two centuries, resulting chiefly in the long 'synonymies' that head the textbook accounts of various species, has grown out of a partial instead of a complete examination of the animal under review.

By some investigators it is believed that until all the internal organs, the bony skeleton, the muscular apparatus, and other animal components receive the same careful examination for determining their specific place in classification that is now given to external characters, there will never be agreement among systematists as to nomenclature.

Ray's systematics were a decided advance on the classification schemata of his predecessors, as they, in their turn, lag behind the biological system inaugurated by the illustrious Linnaeus.

Carl Linnaeus (or Linné) was born in 1707 of educated but poor parents, his father, vicar of Räshult, being a good botanist. A student at the Universities of Lund and Uppsala he had a hard struggle to secure a bare existence and was often in dire want. Before graduation, however, such was his enthusiasm for science that he was allowed to give lectures in the University. That he might further advance in scientific knowledge he took up his residence in Holland where he studied medicine, took his doctor's degree, and then moved to Leiden. There he was assisted in publishing his epoch-making *Systema naturae* which brought him immediate credit and fame. After traveling in Northern Europe for three years, during which time he published many treatises, he returned to Sweden where he made a bare livelihood by the practice of medicine. In 1741 he was made professor of botany at Uppsala and soon became not only the foremost teacher in the University but was recognized as a world-wide scientific leader, acknowledged and acclaimed everywhere. He was the recipient of many honors and was finally ennobled, taking the name of von Linné. His systematic treatises are, as every one knows, the foundation on which modern biologic classification is built. Some of the very numerous Linnaean 'epithe-

Aristotle and Pliny.

tics', among them Pulteney's *Memoirs of the Great Naturalist*, 1805, are to be found in the Blacker and E.S.W. libraries; and it may be added that a complete annotated bibliography of all Linnaean literature is now in process of preparation by Mr. Soulsby, the talented Librarian of Zoology in the (Natural History Dept.) British Museum.

For the advanced student of Linnaeus a most useful handbook is Charles Davies Sherborn's *Index to the generic and trivial names of Animals in the 10th and 12th editions of the Systema Naturae*, 1899.

This is not the place to discuss the competence nor the weaknesses of the Linnaean binomial classification of plants and animals; the Compiler simply repeats one objection to them, viz. that their merits are by no means uniform. The Linnaean zoological classes were not treated as successfully as the botanic system, probably because the writer knew more about flora than he did about fauna.

The pupils of Linnaeus, some of whom were foreigners attracted by the fame and enthusiasm of the great teacher, traveled abroad and made collections and observations independent of their instructor.

Among them mention may be made of those earlier observers who added anything worth while to the literature of zoology.

Peter Artedi, born in North Sweden, more of a fellow worker than pupil, joined with the young Linnaeus at Uppsala to study natural science, the one preferring botany, the other choosing zoology, especially ichthyology. While Artedi was preparing his *Ichthyologia* with the aid of his friend Linnaeus he came to a tragic end; he fell into a canal and was drowned towards the end of 1735. In 1738 his famous work on fishes was edited and published in Leiden by Linnaeus.

Of the French school of systematists and comparative anatomists one must not overlook André Duméril who, in addition to numerous other contributions to natural history, wrote a *Zoologie analytique, ou méthode naturelle de classification des Animaux*, 1806, and a *Mémoires d'Anatomie comparée*, 1807.

F. Hasselquist, an actual pupil of Linnaeus, traveled in the East and died (1752) in Smyrna. He gives the natural history of the countries visited in his *Voyages and Travels in the Levant*, 1766. This work, popular in its day, has been several times translated. The student list also includes such well-known writers as Pehr Forskål (1732–63), whose *Descriptiones Animalium* is among the zoological fundamentals; Pehr Kalm (1716–79); Daniel Solander (who held a position at the British Museum, and died in London in 1782); J. C. Fabricius (1745–1808); and Carl Peter Thunberg. Of these the last-named roamed farthest afield, collected the most material, and published the largest number of monographs. His *Fauna Americae meridionalis*, Uppsala, 1823, in three parts, of which he acted as editor, is a very important contribution to American zoology.

J. C. P. Erxleben's *Mammalia* as part of his *Systema Regni Animalis per classes, ordines*, &c., 1777, must not be overlooked as an important document in the contest over nomenclature and systematics generally.

Because of its value as an early systematic study of faunal life in the Moluccas the Compiler draws attention to a rare folio, G. E. Rumphius' *D'Amboinische rariteitkamer*, &c., published in Amsterdam in 1705.

One writer and traveler of the eighteenth century, Jacob Theodore Klein (1685–1759), demands special mention. His careful treatises (q.v.) on floral and faunal subjects form an important contribution to the history of systematic biology.

One of the finest publications of this period is the *Ornithologie* of Mathurin J. Brisson (1723–1806) who, like the authors just mentioned, modified in many respects the classification of the Linnaean *Systema*.

A student of Linnaeus and his classification was George Edwards, who, in his *Catalogue of Birds, Beasts, Fishes*, &c., 1776, and elsewhere, discusses the systematic nomenclature of the listed fauna.

One of the numerous supporters of the Linnaean method was the brilliant though erratic Rafinesque (1783–1840)—that Sicilian-American to whom a more extended reference is elsewhere made. It will be remembered that there were at this time other systems, advocated by Barrère in 1745 (*Ornithologiae Specimen Novum*; Perpignan); Möhring in 1752 (*Avium Genera*; Zürich); the better known Klein, who published his *Historiae avium Prodromus* at Lubeck in 1750; also the noted English naturalist, William Turton (1762–1835), who not only translated the *Systema Naturae* but compiled a treatise on *British Fauna* (1807) arranged according to the Linnaean system.

An American systematist of some note, T. E. Bowdich, made a rather early *Analysis of the Natural Classification of Mammalia*, Paris, 1821, dealing with both the Illiger and the Cuvier nomenclatures.

One of the early (and rare) Zoologia Americana is J. R. Forster's *Descriptiones Animalium*, 1771, reprinted (with a preface by P. L. Sclater) by the Willughby Society in 1882.

William Swainson (1789–1855) was an active British naturalist. During the first half of the nineteenth century he wrote many monographs on zoological subjects, especially on avian life. It may here be noted that his most enduring contribution to vertebrate zoology was his *Treatise on the geography and classification of Animals* (1835), originally contributed to Lardner's *Cabinet Cyclopaedia*.

It was about this time that Johann J. Kaup (1803–73) wrote his works on (anatomical) classification of animals, most of whose titles are listed in this Catalogue.

In 1850, A. White wrote a semi-popular history of the mammalia, in which stress was laid on classification and habits.

Of eighteenth-century zoologists in France (whose classification of animals is important) Count Georges Louis Leclerc de Buffon, wealthy and well-born, was easily the most brilliant. He received a thorough education at home and, after making the *grand tour*, spent a year in London studying mathematics, physics, and botany. In 1739 he was appointed keeper of the 'King's Garden', now the *Jardin des Plantes*. Under his influence this *Jardin du Roi* was greatly extended and became the centre of biological research in France. Buffon was made a count, a member of the French Academy, and became a universal social and scientific success. In the beginning of 1749 the first part of his famous *Histoire naturelle* was published and he continued to work on it for the remainder of his life. In this monumental task he was greatly assisted by the anatomist Louis Daubenton (1716–1800). The first edition was later followed by several supplementary volumes (*Suites*) and by many translations and editions of the treatise itself. Several of these are represented in this Catalogue and mirror the reputation of Buffon as a natural scientist, brilliant writer, and, in many departments of zoology, an original thinker. It will be noticed, however, in glancing at his contributions to literary biology that he seems unable completely to discuss the subject of mammals. This caption in his *Histoire* was dealt with monographically by Daubenton and others, who added notes on their comparative anatomy.

Although that versatile prodigy the Swiss-born Albrecht von Haller is best known as a physician, poet, and physiologist, he made several contributions to pure zoology, among them a *Historia naturalis ranarum*, 1758, and a mass of observations on animals in his *Bibliotheca anatomica*, an annotated bibliography of all the literature in that scientific sphere to the date of its compilation. Osler said of him (*Bibliotheca Osleriana*, p. 117) that he 'is the greatest bibliographer in our ranks. Next to the Index-Catalogue of the Surgeon-General's Library, his works have been most helpful in the preparation of this catalogue. To learning and judgment he added that indispensable quality in a bibliographer, accuracy'.

Charles Bonnet (1720–93) was, like Haller, born in Switzerland. Although he devoted

/ Lübeck

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8 He is said to have been ---, but that important discovery was first made by Leeuwenhoeck in 1695.

himself almost entirely to insect biology, and is best known as the discoverer of parthenogenesis (in the aphidae). He contributed somewhat to vertebrate zoologic literature; e.g. in his *Contemplation de la Nature* (1769, 2nd ed.), 2 vols., and in his *Œuvres d'histoire naturelle*, &c. (1779–81), 8 vols., 4to, published in Neuchâtel.

Closely related to Bonnet but differing from him in some important respects was the Abbot, Lazaro Spallanzani (1729–99), born at Reggio. The Swiss naturalist translated the Italian scientist's *Opere* into French while Spallanzani himself published one of his early works with the title: *Fisica animale . . . colla giunta di due scritti sullo stesso argomento del celebre Sig. Bonnet* (1782). The Osler Library has a full complement of the works of these two friends.

Several references have been made to the systematic works of the famous zoologist, M. J. Brisson (1723–1806), a rival of Linnaeus. The Compiler again draws the student's attention, at this juncture, to the two editions, 1756 and 1762, of his *Regnum animale*, published in parallel Latin and French columns, as among the fundamental books of reference.

Of later contributions to faunal classification there must be borne in mind L. J. Fitzinger's essays on the subject, among them his *Neue Classification der Reptilien*, Wien, 1826; *Naturgeschichte der drei Reiche*, 1862–4, in 8 vols.; and an unfinished *Conspectus geographicus* of which the *Systema Reptilium* appeared in 1843 as the first fascicle.

One may once more refer here to that faunal systematist, Jacob T. Klein (1685–1759), whose numerous works on all the major faunal groups are represented on the shelves of the McGill libraries. One of the best of these is his criticism (1743) of the arrangement by Linnaeus of his quadrupeds and amphibia in the *Systema Naturae*.

In 1795–7 J. M. Bechstein published the first edition of his treatise on caged animals—including birds, mammals, fishes, and amphibia. Not only have there been several editions of this well-known work but it served as a source of supply for numerous popular books on pet animals during several subsequent generations.

In 1731–8 E. Albin brought out *A Natural History of Birds*, in three folio volumes, London, illustrated, and in 1737 published a book on *English Song Birds*, which is now very rare, there being no copy in the British Museum library.

Among well-known writers on comparative biology was Peter Simon Pallas (1741–1811). Although born in Berlin and educated as a physician in Germany, most of his scientific work was done in Holland and Russia, in the latter country under the patronage of Catherine II. His contributions to biological literature deal in most part with zoology—especially with mammalogy. His *Spicilegia zoologica*, a series of monographs, describes a number of new species. An account of his Russian travels, as well as several other titles by this important zoologist, are recorded in this Catalogue.

The Compiler has not the space required to do justice to a sketch of the life, activities, and enduring influence exerted on scientific thought by that intellectual giant Johann Wolfgang Goethe (1749–1832). It would absorb several pages to evaluate properly his many contributions to biology. Born at Frankfurt-am-Main in 1749 of wealthy bourgeois parents, he first practised law, and then became actively engaged in the political and literary life of the principality of Weimar. After a two years' residence in Italy he retired to devote the remainder of his long life to poetry and science. Of the numerous titles (and the many editions and translations of them) perhaps the best selection of his biological writings is the two-volume edition of *Schriften zur Naturwissenschaft* (1905–7) with notes by Max Morris. These are excerpts from the 14 vols. of the celebrated Weimar publication, mostly on natural science.

In 1822 the Rev. Dr. John Fleming wrote a *Philosophy of Zoology*, giving his views on the classification, structure, &c., of animals, that had considerable merit. He it was who sub-

sequently (1828) published a fair *History of British Animals* in one large 8vo volume.

A South German philosopher who devoted himself to natural history, whose fame spread throughout continental Europe, was Lorenz Oken or Ockenfuss (1779–1851). He, after graduation as a doctor of medicine, taught in several home universities. Finally (in 1832) he settled in Zürich for the remainder of his life where he carried on his chosen work. Oken is best known by that natural history periodical, *Isis*, which he published for many years. The articles in that magazine represent all phases of contemporary opinion; in its columns problems were presented and prizes offered for their solution. Since its discontinuation the title 'Isis' has been given to several other periodicals, showing the sincere flattery of this form of imitation. Complete sets of this storehouse of information are becoming very rare; it was only after years of search that the Compiler was able to complete the files in the Blacker Library.

In the same collection are Oken's *Allgemeine Naturgeschichte für all Stände*, 1833–41, with an atlas of 158 col. pl., and his *Lehrbuch der Naturphilosophie*, 1843. The former is a compilation of high order, the latter, by some regarded as the author's best work, reflects his peculiar notions about the Universe, its government, the source of animal life, and so forth.

Every student of the history of systematic zoology should consult J. B. Spix's *Geschichte aller Systeme in der Zoologie*, 1811, a scholarly account of the science since the days of Aristotle.

Mention may here be made of Karl Gustav Carus (1789–1869), born in Saxony, court physician and (earlier in life) professor of comparative anatomy at Leipzig. In 1861 he summarized his rather eccentric notions about the relations of species to one another in his *Natur und Idee*. The whole animal system is arranged in circles, with protozoa at the periphery and *homo sapiens* in the centre—the Circular System.

A noteworthy work is Max Weber's *Die Säugetiere*, 1904, a monograph on the anatomy and classification of mammals recent and fossil.

An illuminating contribution to the science of classification is found in Louis Agassiz's (1854) *Sketch of the Natural Provinces of the Animal World*.

Of the army of systematists who compiled or wrote original schemes of nomenclature must be mentioned René P. Lesson (1794–1849) whose numerous contributions to the literature of vertebrate zoology are well known. The *Manuels*, both of *Mammalogie* (1827) and of *Ornithologie* (1828), are among the earliest of his writings, while his various *Tableaux* furnish his ideas of faunal classification. Most of Lesson's titles are listed in the Catalogue.

A systematic treatise of considerable importance is the voluminous system (14 vols. with many illust.) by George Shaw, London, 1800–26.

Systematics based on special anatomy is the work of J. B. Spix, *Cephalogenesis, sive capitis ossei structura*, &c., 1815, by which classes, families, &c., are to be determined by the conformation of head structure.

In some systematic classifications all faunal forms are supposed to be grouped or to revolve about *homo sapiens* as the central figure. Beginning with the *Historia Naturae* (1635) of Nierenberg, Fischer de Waldheim in his *Tableaux Synoptiques de Zoognosie* (1806) was followed by William S. Macleay (1792–1865) who further elaborated his concepts of the so-called Quinary classification.

It was Vigors, however, that was most influential in pressing Quinary graphs on the scientific world, a task in which he was greatly assisted by Swainson. Both these writers contributed, between 1823 and 1835, many papers on the subject to the *Transactions of the Linnaean Society* and to the *Zoological Journal*.

As stated by Swainson in his *Geography and Classification of Animals* (1835) this so-called 'circular-grouping' held sway among systematists for a number of years.

While on this subject attention must be drawn to the fundamental and enduring work on *neotropical classification and nomenclature* carried on for nearly a century by American systematists—most of it contributed to U.S. Government Publications. Although titles in serials have been, as stated, necessarily ignored in this Introduction, the Blacker and other libraries of McGill University have on their shelves a goodly array of these indispensable publications that record the labors of Baird, Merriam, Nelson, Stone, Richmond, Gill, Allen, Coues, Henry, Ridgway, and a hundred other faithful workers, living and dead, who have left their mark on the history of zoology.

CHAPTER VII

SOME FUNDAMENTAL TITLES IN THE LITERATURE OF MODERN VERTEBRATE ZOOLOGY — HAND-COLORED ATLASES AND THEIR MAKERS — ANIMAL PAINTERS AND ILLUSTRATORS.

Temminck—Schlegel—Catesby—Albin—Geo. Edwards—A. Sparrman—Bree—Fritsch—William Hayes—W. Swainson—Jacquin—Susemihl—Sven Nilsson—F. Levaillant—Audebert—Vieillot—Prince Maxmilian Wied-Neuwied—A. Desmarest—Audubon—Manetti—E. Rüppell—J. A. and J. F. Naumann—John Gould—Fraser—Sir W. Jardine—C. W. Hahn—Des Murs—G. D. Rowley—René P. Lesson—Kittlitz—Reichenbach—J. O. E. Perrier—Cassin—D. G. Elliot—J. E. Gray—Lear—Dresser—Olphe-Galliard—Joseph Wolf—Keulemans—George Moore—Marshall Bros.—Lichtenstein—William Lewin—Wolf and Meyer—Montagu—Graves—Selby—John Hunt—Jenyns—H. L. Meyer—Eyton—Macgillivray—Yarrell—F. O. Morris—H. Seebohm—Jardine—Booth—J. Rennie—Lord Lilford—Shaw and Stevens—Duméril—Gravenhorst—Illiger—Hardwicke—Ranzani—Latreille—Wagler—d'Orbigny—Millais—St. George Mivart—Gaetke—Kaup—Prince C. L. Bonaparte—Giebel—Trouessart—C. O. Waterhouse—C. D. Sherborn—Thos. Brown—George Robert Gray—Richardson and Swainson.

THE modern literature of European fauna deals largely with continental forms. So far as *birds* are concerned—and they occupy much of the limited space devoted to animal life in this Introduction—mention has already been made of Temminck's *Manuel d'ornithologie*. It first appeared as a single book in 1815, but was expanded into several volumes, and for fifty years was the best known work on European ornithology. One of the author's colleagues, Hermann Schlegel, brought out (1844) in German, Latin, and French a *Kritische Uebersicht der Europäischen Vögel* which treated to the date of publication and in masterly fashion the whole subject of European avifauna.

The first six or seven decades of the nineteenth century formed the period, *par excellence*, of splendor in *hand-colored illustration*. Neither before nor since have animals—especially birds—been so splendidly and effectually depicted. There were, it is true, a few forerunners of these really magnificent atlases—most of them folios and quartos—among the earliest being two large folios (1731–43) containing fine illustrations of Mark Catesby's well-known *Natural History of Carolina*, destined for several foreign translations and reproductions. This work was followed in 1738–40 by Eleazer Albin's colored figures illustrating his *Natural History of Birds*, and, best of all, by George Edwards' *Gleanings of Natural History* in four quarto volumes.

As early as 1786–9, A. Sparrman's *Museum Carlsonianum* (q.v.) with 100 colored plates was published. Later (1832–7) appeared the magnificent Gould's *Birds of Europe*, in five folio volumes. In 1849 was published Degland's *Ornithologie Européenne*, in two volumes, whose errors were supposed to be corrected by Gerbe in a second edition (1867). Bree's excellent *Birds of Europe not observed in the British Isles*, 4 vols., 1858–63, in 1875 reached an improved edition of five volumes, while Anton Fritsch in 1870–1 published his *Naturgeschichte der Vögel Europa's* with a well-made folio Atlas.

Of the earlier examples of zoological atlases with fine, colored plates, one must remember

the works of William Hayes, especially his *Natural History of British Birds* (1775), 40 colored plates, and his famous *Osterley Park Portraits* (1794) with 101 hand-colored plates. Jacquin's *Beyträge zur Geschichte der Vögel*, 1784, although a small folio, has 19 excellent colored plates.

A fine early atlas of hand-colored plates, 3 volumes, with text, is W. Swainson's *Zoological Illustrations*, 1820–3.

Another noteworthy atlas is J. C. Susemihl's *Abbildungen der Vögel Europas*, 1839–51, a quarto with 106 fine, colored plates.

Influenced to an extent by the previous activities of Linnaeus, Sven Nilsson (1787–1883) began his literary labors by publishing, in 1817–21, his *Ornithologia Svecica*, followed soon after by several treatises and fine atlases on Scandinavian fauna in general, most of which had subsequent editions. Consult the present annotated Catalogue.

An *Afbeeldingen* of Netherlands zoology, 316 well-executed hand-colored plates of which 133 depicted birds, was issued in 1838 by Nicolaas Anslijn.

Reproductions of colored drawings almost attained perfection in the atlases of François Levaillant (1753–1824), several times mentioned in these pages. His earliest large work was a magnificent folio—with many colored plates—the *Histoire naturelle . . . d'Oiseaux de l'Amérique*, &c. (1801); the next three were the famous volumes on Parrots, not completed until after the author's death, followed by two monographs on other avian groups. It seems a pity that he was unable during his lifetime to complete, even with the aid of his son and of Temminck, his admirable *Oiseaux d'Afrique*, the sixth and last volume of which was published in 1808. The McGill libraries have almost complete sets of F. Levaillant's works, including the rare English rendering (London, 1790) of the *Voyage dans l'intérieur d'Afrique*, Paris, 1790.

A contemporary and similar series of works to those of Levaillant were begun by Audebert and Vieillot. In 1802 appeared their *Oiseaux dorés*, two folio volumes, remarkable plates whose fine hand-coloration is heightened (though from the systematic point of view not improved) by gilding.

Vieillot issued in 1805 a work on the 'beaux chanteurs' of the torrid zone, and in 1807 another treatise on the birds of North America.

A fine colored atlas (90 plates) of the fauna of Brazil accompanied Prince Maxmilian Wied-Neuwied's *Abbildungen zur Naturgeschichte Brasiliens*, 1822–31.

Mention must be made also of A. Desmarest's (1784–1838) *Histoire Naturelle des Tangaras* (1805), as well as of the publication in 1808 of a rare and beautifully illustrated *Les Pigeons* by Coenraad J. Temminck (1770–1858), assisted and illustrated by Mme. Knip. In 1813–15 he published, alone, a 3-volume work on the same subject. These fine atlases were followed in 1815 (2nd ed. 1820–4) by his *Manuel d'Ornithologie* which was translated into Dutch in 1824.

Of the many folios and quartos illustrated by splendid and costly hand-colored plates the blue ribbon must be awarded to an Americana, Audubon's famous elephant folio of 435 life-size studies of the *Birds of America* (1827–38). This magnificent atlas was followed by several folio and smaller-sized editions, both of plates alone and of text under the title *Ornithological Bibliography*. All these editions, reprints and variants, are listed in this Catalogue and shelved in the libraries of McGill University. A sketch of Audubon's career and a further account of his literary activities will be found in the chapter on *Unica*.

In 1820 Temminck, assisted by Baron Laugier, projected a supplement to D'Aubenton's *Planches Enluminées* (1771–86) with the title *Nouveau Recueil*, &c. (1838). One hundred and two parts in five volumes illustrated by 500 plates were issued at irregular periods, the last in 1839. One of Temminck's disciples was J. C. Werner, whose splendid *Atlas des Oiseaux d'Europe* of 530 plates (1842–8) is elsewhere described.

An admirable Italian and Latin ornithological

compilation by Xaverio Manetti (1723–84) and others in five volumes, fairly well illustrated in color, was published at Florence, 1767–76.

Vieillot completed in 1825 the text of the *Galerie des Oiseaux*, an ambitious effort to figure and describe every avian species. Oudart prepared the plates, and the work was continued until two volumes with 301 colored illustrations had been published.

Although many brilliant colored atlases of birds (and fishes) will be mentioned and listed in this work it must not be forgotten that similar collections of pictures covering all the vertebrate orders were occasionally published, an example of which is the *Atlas zu der Reise im nörd. Afrika*, by E. Rüppell, in 5 parts with over 100 fine, colored plates.

Contributions to the long list of early hand-colored treatises on the avifauna are the remarkable volumes of the two Naumanns, beginning with Johann Andreas (1744–1826), whose *Naturgeschichte der Land- und Wasser-Vögel des nördlichen Deutschlands*, &c. (1789–1803) with drawings by Johann Friedrich (1780–1857) was followed by several similar titles, generally accompanied by atlases with hundreds of colored plates. These editions (the last one of 12 volumes, completed in 1905) really form the principal accounts we have of middle-European birds, and the Compiler advises all students to make themselves familiar with their pages.

In 1832 John Gould began the publication of his wonderful series of zoological monographs that for profusion of hand-colored illustrations have never been equalled. Beginning with *A Century of Birds from the Himalaya Mountains* he finally published through a series of years about forty-five folio volumes (exhibiting 3,000 colored plates) that comprise a marvellous array of treatises, whose full titles will be found in the present Catalogue. They constitute the most attractive literary treasures of the Blacker and E.S.W. libraries, and include his famous *Birds of Asia* as well as the incomparable atlas-treatises on Humming Birds, Toucans, Trogons, &c.

Fraser's ambitious *Zoologia typica*, begun in 1841, was intended to include a general series of colored plates, and although the seventy plates that did appear were extremely well executed the enterprise did not meet the support it deserved, and it was discontinued in 1849.

Better in execution are the colored pictures prepared by Selby and Jardine for *Illustrations of Ornithology* (1827–43) in four volumes with over 200 plates.

In 1834–41 appeared C. W. Hahn's *Ornithologischer Atlas* of birds of the world, unfinished after 137 colored plates had been issued.

James Wilson's *Illustrations of Zoology* (1828) produced 36 colored plates.

Des Murs' supplement to D'Aubenton's *Planches enluminées*, entitled *Iconographie ornithologique*, with seventy-two colored plates, was completed in four years (1845–9). Similar to it are the *Esquisses ornithologiques* of Du Bus, with 37 plates, followed by the more valuable *Exotic ornithology* of Sclater and Salvin with 100 plates picturing 104 species from Central and South America. About the same time appeared the periodical *Ornithological Miscellany* of Rowley (1875–8), having as contributors the leading British ornithologists of the day. The hand-colored plates are unusually good, from drawings by that fine artist Keulemans.

Most of the atlases described above (costly and rare folios and quartos) were followed about this time by quite a few volumes on zoology of smaller size and, generally speaking, of minor importance. Among the former are Swainson's excellent three (octavo) volumes of *Zoological Illustrations* with 182 colored plates (1820–1), succeeded by a second series, equally good, completed in 1833. The latter, of three more volumes, contained 136 plates.

About this time (1828) Lesson brought out in two duodecimo volumes his *Manuel d'Ornithologie* and in (1831) an octavo *Traité d'Ornithologie*, with an atlas of the same size containing 119 plates. A well executed *Centurie*

Wilhelm Kuhnert (1865-) is among the most noted of German modern illustrators of faunal works; for example his Farbige Tierbilder (1910-11) and his Im Lande meiner Modelle (2te Auf., 1920).

Zoologique, with 80 colored plates, completed in 1831 and followed by *Illustrations de Zoologie*, 60 plates, was also due to the labors of this well-known and diligent naturalist.

In 1832–3 Kittlitz published his *Kupfertafeln zur Naturgeschichte der Vögel*, with 36 plates.

Attention has already been drawn to the elaborate works of Reichenbach who in 1845 began publication of his remarkable series of illustrated quarto treatises which were issued during the following ten years and are generally referred to under the title *Vollständigste Naturgeschichte der Vögel*. On about 1,000 plates—900 colored—are crowded illustrations representing avian species, mostly reduced in size from other authors, Gould in particular. A. B. Meyer, in 1879, published a useful, indeed necessary, *Index* to these numerous pictures.

During 1902–6, J. O. E. Perrier published *La Vie des Animaux illustrée* in four volumes with numerous colored plates; mammals by A. Ménégaux and birds by J. Salmon.

In 1853–5 Cassin brought out what is regarded by some as a supplement to Audubon's octavo edition, *Illustrations of the Birds of California*, &c., and in 1866–9 D. G. Elliot published an important and well-illustrated sequel to Audubon's treatises entitled *New and hitherto Unfigured Birds of North America*.

After the lapse of nearly sixty years an accomplished ornithologist-painter, Rex Brasher (following the example of Audubon), published an atlas (1930) of 12 volumes depicting *all* the birds of North America—a stupendous undertaking rivaling the work of Audubon in execution and much exceeding him in the number and variety of his pictures.

In 1830 John Edward Gray began publishing his atlas, *Illustrations of Indian Zoology*, without descriptive text.

During 1832 Lear issued his faithfully figured work on Parrots. Many of the original drawings used to illustrate this monograph are now in the Blacker Library.

A notable work on European bird life is that of Dresser (and Sharpe) who began their well-known *Birds of Europe* in 1871, to be completed alone by the former in 1879—a splendid 4to set of eight volumes, followed by a helpful supplement. The beautiful colored plates are reproduced from the drawings of Keulemans and Neale. Newton (*Dictionary of Birds*, p. 42) remarks of this fine piece of work: 'European ornithologists have been all but unanimously grateful to Mr. Dresser for the way in which he brought this enormous labour to a successful end.'

Léon Olphe-Galliard issued in 41 fascicles a *Contributions à la Faune ornithologique de l'Europe Occidentale*, 1884–91, usually bound in 4 volumes, one of the most important systematic treatises ever written on the subject. Among several similar publications, J. Backhouse brought out (1890) a useful *Handbook of European Birds*. The E.S.W. Library has an interleaved and annotated copy prepared by the author for a second edition that never appeared.

The greatest of all animal painters, Joseph Wolf, began in 1855 the publication of his *Zoological Sketches* from subjects in the London Zoo. This wonderful exhibit of faunal portraiture has never been equalled in that desirable but rare combination—fidelity to nature and artistic conception. The Blacker Library has a small number of original drawings by Wolf that are regarded as among the finest of its 'association' possessions.

Several large zoological atlases were the product of the pen and brush of George Shaw (q.v.) who, among other works, depicted the collections in the Museum Leverianum (1792–6), and with F. P. Nodder issued 24 volumes of colored natural history plates entitled *The Naturalist's Miscellany*, London, 1790–1813.

These truly great examples of colored reproductions of animal subjects (most of them finished by hand) were followed at rather regular intervals for many years by smaller enterprises, some of them of importance. A fair example is the Marshall Bros. *Capi-*

tonidae or Scansorial Barbets, a monograph with 73 beautifully colored plates, London, 1870–1.

As the Compiler has elsewhere mentioned, both the *Centurie Zoologique* (1830) and the *Illustrations de Zoologie* (1832) of Lesson, the former with 80 and the latter with 60 colored plates, deserve a place with the best of the colored bird atlases.

A valuable Museum Curator who utilized his material for publishing drawings, catalogues, and letterpress of scientific value, was M. H. C. Lichtenstein of Berlin (1780–1857). See the appended Catalogue.

One of the treasures of the Blacker Library is William Lewin's *Birds of Great Britain*, with the seven extra-illustrated volumes of hand-colored plates, London, 1789–94, elsewhere fully described.

Another fine atlas is that of Wolf and Meyer's *Naturgeschichte der Vögel Deutschlands*, 1805–21, with 176 colored plates.

Of Montagu's remarkable *Ornithological Dictionary* (various editions 1802–83) it may be repeated that it was the earliest and best of its kind. Graves published in three volumes and two editions (1811–21) a *British Ornithology* that does not find favor with Newton who prefers the contemporary treatise of the same title by John Hunt, published at Norwich (3 vols., 1815–22) but never completed.

About this time (1825–33) appeared a fine series of 222 colored plates engraved by the author—Selby's *Illustrations of British Ornithology*, in two folios, accompanied by two similar volumes of text. This well-known work passed to a second edition, the first volume of letterpress being changed to bring the classification in conformity with the so-called Quinary theory that then (and for a long time afterwards) was quite fashionable.

A fairly well-known octavo work—now quite rare—appeared in 1828, Fleming's *History of British Animals*, followed in 1835 by Jenyns' *Manual of British Vertebrate Animals*, a very useful handbook. Librarians and others will please note that Leonard Jenyns later underwent a change of name (but not of heart) to L. Blomefield. It was in 1857 that H. L. Meÿer completed his celebrated *Coloured Illustrations of British Birds and their Eggs*, in quarto.

Eyton, in 1836, published a supplement to Bewick's *Birds* (1821) under the heading *History of the Rarer British Birds*.

The year 1837 was marked in the annals of British vertebrate zoology. This was the inception of treatises on the bird life of Great Britain by Macgillivray and Yarrell. The eulogy pronounced upon the works of both these naturalists by Alfred Newton is, in the judgment of the Compiler, well deserved: 'They still stand as the best that could be said on the subject in the middle decades of the nineteenth century.' An entry of most of the editions of their principal studies—both entitled *A History of British Birds*—will be found in this Catalogue. Saunders, it may be added, condensed and practically re-wrote (in one volume, 1889) Yarrell's three volumes to form a most valuable and useful *Manual of British Birds*.

Profiting (in quite a legitimate fashion) by the observations and writings of Macgillivray and Yarrell, the Rev. F. O. Morris published *A Natural History of the Nests and Eggs of British Birds*, 3 vols., 8vo, 1st ed., 1853; a *History of British Birds*, 8 vols., numerous editions; H. Seebohm also a *History of British Birds*, &c., 4 vols., 1883, and several other and earlier editions. These volumes were for many years very popular; they are well written and excellently illustrated works on the subjects of their title-pages.

Although Professor Newton does not hesitate, in his usual frank manner, to state what he regards as the inferior status of the Morris and Seebohm volumes yet there are several authorities that do not agree with him. Certainly the works of both authors were employed as textbooks by several generations of teachers and advanced students, to the entire satisfaction of all concerned, and the colored plates that adorn the text have been approved

and copied by many experts and informed illustrators to the present hour.

A unique literary and book-making performance is Jardine's *Naturalist's Library* (1830–45), forty octavo volumes. This semi-popular work, successfully picturing by means of hundreds of hand-colored portraits the vertebrates of the world, is a wonderful little library of natural history, an encyclopedia of faunal monographs of which three editions, one a reprint, have appeared. The memoirs of celebrated naturalists, that form part of the *Library*, are well worth reading.

Another excellent treatise, with the misleading title, *Rough Notes on Birds in the British Islands*, is by Booth of Brighton, 1881–7. This work forms two folios, with fine drawings by Keulemans.

Here one may draw attention to a rather useful book, J. Rennie's *Architecture of Birds*, one of the early monographs on avian anatomy.

Every doctrine promulgated by the immortal White of Selborne is revered by this Compiler, and he firmly believes, with the great naturalist, that 'every kingdom, every province should have its own monographer', but when it comes to the recognition of half a dozen monographers for *every* province he would like to draw somewhere a well-marked line. In no country (although Germany and the United States make a good second) in the regional world have 'local faunas' been so widely exploited as in the British Isles. There seems to be a monograph on the vertebrates of every region, county, city, and town of the United Kingdom, several times repeated. Some of these will be noticed here; for the remainder the Catalogue must perform that duty.

The array of expensive colored atlases just described by no means exhausts the output of zoological literature of the same character during the period indicated. These are systematic manuals and other treatises published in considerable numbers, the colored plates being mostly subsidiary to and illustrative of the complete letterpress. Of more recent examples one may cite the magnificent (456) *Coloured Figures of the Birds of the British Islands*, by Lord Lilford (T. L. Powys), in seven volumes; the drawings by Keulemans and Thorburn.

Returning for the moment to vertebrate zoological literature in general, among the more important handbooks and monographs are Shaw and Stevens' *Zoology*, in 14 volumes (1809–26); Duméril's *Zoologie analytique* (1806); Gravenhorst's *Vergleichende Uebersicht des linneischen Systeme* (1807); Illiger's *Prodromus Systematis Mammalium et Avium* (1811), a useful handbook; Vieillot's *Analyse d'une nouvelle Ornithologie* (1816), now very rare, but reprinted by the Willughby Society; Temminck's *Manuel d'Ornithologie* (1820) in which he promulgated an *Analyse* of his own that criticized and really supplanted the classifications of Vieillot and Illiger in the minds of ornithologists generally.

Another fine example of faunal depiction is *Illustrations of Indian Zoology*, by T. Hardwicke and J. E. Gray, 2 vols., 1830–4. Still another is De Kay's *Zoology of New York* (1842–4) in which the birds are shown in 141 fine, colored plates.

Ranzani in 1821 published his compilation, *Elementi di Zoologia*, in 8 volumes; in 1825 appeared Latreille's *Familles Naturelles du Règne Animal*, and in 1827 Wagler completed his *Systema Avium*, followed in 1830 by a *Natürliches System der Amphibien*, both works being more fanciful than useful to students.

For the serious student of American ornithology d'Orbigny's *Synopsis Avium*, based on his voyage to America, must not be forgotten.

The Compiler, whose present function it is to annotate zoological works in the McGill libraries, has elsewhere commented on a portion of the literature of those occupations and amusements known as the Chase, Hunting, and (certain forms of) Sport. At this time it may be well to discuss the varieties that involve the *unnecessary destruction of animal life*, because it is the Compiler's considered opinion that when joined, as is frequently the case, to the deliberate killing of birds or other

animals for the mere gratification of one of man's meanest instincts, the act assumes the guise of a cowardly murder—and nothing else. And when this wanton destruction is accompanied by the infliction of long-drawn-out pain and misery the crime ought to be denounced in no uncertain terms by every believer in the rights of animals. It should be equally condemned whether the deed be perpetrated by 'our very best people' or by the so-called 'lower classes'; whether the defenceless and often harmless creatures are needlessly done to death in the lovely stretches of the British Isles, in the forests or mountains of America, on the blood-stained terraces of Monte Carlo, in the bull-rings of Spain or France, in the jungles of India, or in the uplands of the African continent.

Let the apologist disguise it as he will, deplorable inhumanity lurks in live-pigeon shooting matches, in pheasant and partridge bags, in the pleasures of wild-fowling, in the otter hunt, in the horrible stag hunt, in the fox hunt (that 'pursuit of the "uneatable" by the "unspeakable" '), in deer hunting, and in every one of those allied cruelties one meets the wide world over.

Lest some unsophisticated reader may accuse the Compiler of being too 'sobby and sentimental' on this subject let him read an authentic account of, say, an up-to-date otter hunt, by a responsible naturalist. He will find such a recital in Henry Williamson's *Tarka*, with an introduction by Sir John Fortescue, published in 1930, a copy of which is in the Blacker Library.

The author describes the brave fight of an animal with his most dreaded enemies—dogs, 'gentlemen' garbed in full hunting regalia, and a mixed crowd of men, women, and children who chased him one bright summer's day over the English moorlands. All day long this human mob, urging on a score of hounds to bite and worry the unfortunate beast, assisted with long, iron-shod poles in hunting him out of holes and watery shelters in which he from time to time took temporary shelter After nearly nine hours of this sort of amusement they finally killed him. And this is how he died: 'He crawled half up the bank, but turned back at the thudding of many feet and swam down to the stickle. The sideway ply of a pole in a turmoil of water struck him on the head. He pushed past the iron point but it was brought down on his shoulder. Hounds were fifteen yards away, urged on by the horn and the cheers of the whippers-in. Thrice Tarka's teeth clicked on the iron pressing his shoulder as he strove against the weight of the sportsman trying to lift him back. A second pole was brought down from the other flank, crossing the first—and these wooden pincers held him. Amid the harsh cries of men and women and the heavy tongues of hounds Tarka was overborne by the pack.'

But the wretched otter was not quite dead yet; there was more fun in store for the hunters. 'Tarka escaped at last from the worry and swam down stream slowly, bleeding from many wounds . . . and as hounds and men were about to leave he was observed to kick feebly and roll over. *Tally Ho!*'

Alas! for this blot on the scutcheon of an otherwise brave and gentle people.

The student's attention is directed to one of the best known, modern, illustrators of works on game animals—especially birds—viz. John G. Millais. Among many publications of merit is his *Game Birds and Shooting-Sketches*, 1892, admirably illustrated by 34 colored plates. More to the Compiler's liking are his *British Surface-Feeding Ducks*, 65 plates, 1902, and his *Mammals of Great Britain and Ireland*, 1904–6, in three finely illustrated volumes.

About the same time (1896) appeared a magnificent quarto, with 61 colored plates, St. George Mivart's *Loriidae*, preceded by another admirable monograph, 45 plates, on the *Canidae* (1890).

Covering, after a fashion, the same ground as Gätke's famous *Vogelwarte Helgoland*, 1891, is an English translation by Rosenstock, entitled *Heligoland as an Ornithological Observatory*, published in 1895

The ever-present, ever-changing subject of faunal classification received an impetus by the writings of Kaup, especially in his *Allgemeine Zoologie* (1829) and twenty years later in his *Ueber Classification der Vögel*.

In this connection one must mention the illustrious name of Prince Charles Lucien Bonaparte, whose famous and useful *Conspectus Generum Avium* (begun in 1850) was in 1865 provided with an indispensable supplement by Finsch.

The professional naturalist ought to have within his reach Giebel's *Thesaurus Ornithologiae*, published in 1872–7, another valuable work of reference.

A well-known systematist, E. L. Trouessart (1842–1918), has written several annotated lists of mammals and birds, among them his *Catalogus mammalium*, 1898–1905, and his *Catalogue des Oiseaux d'Europe*, 1912. Other systematists have worked at the same task, among them C. D. Sherborn (q.v.) and C. O. Waterhouse. The latter first published his *Index Zoologicus* in 1902, as part of the indispensable *Zoological Record*.

Capt. Thomas Brown's illustrated works should receive mention here, more for their great rarity than for their additions to zoological knowledge. The Blacker and E.S.W. libraries have all his titles.

The works of George Robert Gray mark an important era in zoological literature. For many years in charge of the ornithological collections in the British Museum, he began by publishing his important *List of the Genera of Birds* in 1840, followed by a second edition in 1841. The E.S.W. Library has both of these editions, the latter one being Gray's own interleaved copy with MS. notes for subsequent treatises.

In 1844–9 appeared his *Genera of Birds* in three folio volumes, beautifully illustrated by Mitchell and Wolf, with 185 colored and 148 uncolored plates. It contains references to more than 2,400 generic names and forms an indispensable item in every research library on zoology.

The foregoing were privately printed, but in 1855 Gray brought out for the Museum his well-known *Catalogue of the Genera and Subgenera of Birds*, a small but useful manual based on his larger works.

Dr. Chas. Richmond, in a letter to Mr. W. L. Sclater, points out that the Carnegie Museum has appended to its library copy of this 1855 *Catalogue* an additional title-page reading 'A List of Genera and Subgenera of Birds', 1855 (Taylor and Francis), followed by a leaf of 'Addenda' printed on both sides. Dr. Richmond thinks this is not a part of the British Museum publication but was added in a few instances by Gray to presentation copies. At any rate they are certainly exceedingly rare leaflets.

In 1869–71 Gray published for the Museum his *Hand List of Genera and Species of Birds* in three parts, making three octavo volumes, thus adding more valuable tools to the armament of the research student.

The first zoological work published at the expense of the British Government, the *Fauna Boreali-Americana* (1829–37), appeared as a magnificent and wonderfully useful series, by Richardson and Swainson.

CHAPTER VIII

FROM NATURAL PHILOSOPHY TO MODERN BIOLOGY—THE LITERATURE OF VERTEBRATE ZOOLOGY, 1750 TO 1850 A.D.

S. Raffles—T. Horsfield—Reinwardt—C. J. Temminck—Mauduyt—T. Pennant—Schäffer—P. Brown—Hermann—Jacquin—Prosper Alpinus—Schwenkfeld—Salerne—D'Aubenton—E. Griffith—J. E. Gray—P. L. S. Müller—Tegetmeier—Gmelin—F. M. Daudin—J. R. Forster—Thienemann—Andrew Smith—Andersson—Holub and Pelzeln—Shelley—Layard—Reichenow—Von der Decken—Canon Tristram—Rochebrune—A. Milne-Edwards—A. Grandidier—Erasmus Darwin—E. Geoffroy Saint-Hilaire—F. Cetti—J. F. Blumenbach—Lamarck—Baron Cuvier—T. Schwann—Richard Owen—J. Müller.

THE last half of the eighteenth and the first half of the nineteenth centuries witnessed the visits of a number of zoologists not only to India but to its neighbouring countries. Among these naturalists one may mention Sir Stamford Raffles who first wrote, in 1817, a two-volume *History of Java* (valuable to students of zoology) and later contributed to Jardine's *Illustrations of Ornithology*.

Stamford Raffles, son of a British sea-captain, was born in Jamaica, July 5th, 1781. In 1795 he was appointed to East India House and settled in Penang. In 1805 he accompanied Lord Minto on an expedition to Java. In 1816 ill health required his return to England, where he wrote his *History of Java* and was knighted. In 1818 he returned to the Far East and formed a settlement at Singapore. Returning to England he founded the London Zoological Society, and died in 1826.

Thomas Horsfield (1773–1859), born in Philadelphia, but died in London, was the author of many treatises on the fauna of the Far East—the Dutch East Indies in particular. Perhaps one of his finest contributions to the literature of the subject was his *Zoological researches in Java*, 4to, London, 1824, with a large number of colored plates.

Dutch travelers sustained their reputation as active explorers by contributions to the natural history of their own East Indian possessions. Of these Caspar G. C. Reinwardt (1773–1854) was a prominent writer, although his reports were mostly botanical.

As a member of the *Natuurkundige Commissie in Ost-Indie* Salomon Mueller wrote (with H. Schlegel) a *Zoology of the Dutch East Indies*, folio, 1839–44, that is a reference classic. Working on the same task C. J. Temminck contributed *Verhandeling over de Natuurlijke Geschiedenis der Nederlandsche overzeesche bezittingen*, &c.

In quick succession followed Shaw's *Memoirs of the Museum Leverianum* and Mauduyt's *Ornithologie* (1784) in the *Encyclopédie Méthodique*, a second edition of which was begun in 1790 by Bonnaterre, after whose tragic death during the French Revolution it was finally finished by Vieillot in 1823. A little later appeared the first (folio) edition of the monumental treatise of Naumann on the birds of Germany.

In the preface to his *Dictionary of Birds*, Newton briefly cites the names of many ornithologists and their works as belonging to this period, among them Thomas Pennant (1726–98) (*Genera of Birds*); Schäffer (1718–90) (*Elementa ornithologica*); Peter Brown (fl. 1776) (*New Illustrations of Zoology*); Hermann (1738–1800) (*Tabula Affinitatum Animalium*); Jacquin (1766–1839) (*Beytraege zur Geschichte der Voegel*); Sparrmann (1748–1820) (*Museum*

Carlsonianum), and Hayes (*ca.* 1729–99) (*Portraits of Rare and Curious Birds*). These titles, with their dates of publication, appear in the accompanying Catalogue of the McGill libraries.

Early voyages to still more remote parts of the Old World and descriptions of their faunal and floral life are described by many hardy explorers. Only a few of these can be mentioned here; the expedition to Palestine of Georg Breydenbach, who furnished the first drawing of the giraffe; of Johannes Leon Africanus, a Spanish Arabian (El Hassan el Wasan, died 1532), whose writings on African zoology have been 'absorbed' by several other writers; of Prosper Alpinus (1553–1617), whose *Historia naturalis*, descriptive of animal life in Egypt, appeared in Leyden, 1735; and the many travels and reports of Pierre Belon, the celebrated naturalist whose works we have several times noted.

Quite early the Russian Empire was visited, explored, and described (mostly by Germans) to some degree in the interests of scientific research. Sigismond von Herberstein wrote one of these accounts (*Rerum moscoviticarum Commentarii*, Basel, 1556) and Caspard von Schwenckfeld another (*Theriotropheum Silesiae*, &c., 1603).

Towards the end of this period an important series of monographs, now very rare in their complete state, were published by C. P. Thunberg (1822–3) describing the faunal life of widely separated zoologic areas, among them America, Brazil, Japan, New Holland, China, the Guianas, *et al.*

In the year 1767 appeared a posthumous work by Salerne (d. 1760), issued from Paris and entitled *Histoire Naturelle . . . l'Ornithologie*. It was based on Ray's *Synopsis*, and Newton, always chary of praise, speaks very highly of the volume.

Acting under Buffon's influence and subsidized by the French Government, D'Aubenton, between 1765 and 1780, published his remarkable atlas entitled *Planches enluminées d'histoire naturelle*, already noticed. It appeared in 42 parts and pictured 1,008 animals, mostly birds. It was certainly a tremendous undertaking and there is to-day no more imposing collection of hand-colored plates. As the atlas was without accompanying text Buffon supplemented the work by his *Histoire naturelle, générale et particulière*, nine of the forty-four volumes being devoted to avian life. This arduous undertaking was begun in 1749 and was not completed until 1770, during which time Buffon had the assistance of several competent and careful collaborators. Too much praise cannot be given the author of this remarkable treatise, enlarging, as it did, every department of zoological research.

In 1827 Edward Griffith, a copyist of Baron Cuvier, wrote a respectable *Animal Kingdom* in 16 volumes that shows signs of original thought.

On the whole, the two Grays, George Robert (1808–72) and John Edward (1800–75), did more than any other systematists to place vertebrate zoology on an enduring basis. Their work in the British Museum and elsewhere is voluminous, catholic, and reliable. Only a small part of their essays, catalogues, and other library titles are mentioned in this Introduction but most of them have been listed in the Catalogue and Index.

During this period, also, P. L. S. Müller (1725–76) published a (translated and amended) edition of the *Systema Naturae*. Ten years later appeared Boddaert's *Table des Planches enluminéez*, reprinted by Tegetmeier. In 1786 Scopoli published his *Deliciae Florae et Faunae Insubricae*, a rare work, also reprinted and based on Sonnerat's *Voyage aux Indes*, &c. (1872–6). Two years later appeared Gmelin's celebrated compilation (the thirteenth edition) of the *Systema Naturae*. Another important general treatise on ornithology issued in the eighteenth century was F. M. Daudin's *Traité élémentaire*, &c.

Very rare and yet fundamental is the *Zoologia Indica Selecta* of J. R. Forster, Halle, 1781, printed in both Latin and German and based on Tennant's *Indian Zoology*.

Oology and its literature will not occupy much

space in this Introduction although the appended Catalogue will be found to list most of the works on avian and reptilian eggs. One of the finest colored atlases depicting the former is F. A. L. Thienemann's *Einhundert Tafeln von Vögeleieren*, 1845–54.

The mammals, reptiles, amphibia, and birds of the Ethiopian Region (Africa in particular) have had extensive literary attention, and it is not possible to mention all the deserving works on the vertebrate fauna of all the provinces. Prominent among them are Sir Andrew Smith's *Illustrations of the Zoology of South Africa* (1838–49), the second edition by Sharpe issued in 1884; Andersson's *Notes on the Birds of Damara Land* (1872); Holub and (August) von Pelzeln's *Beiträge zur Ornithologie Südafrikas* (1882); Shelley's comprehensive *Birds of Africa* (1896–1912); Layard's *Birds of South Africa* (1867); Newton's article in the *Encyclopaedia Britannica*, 9th edition; Reichenow's *Die Vögel Afrikas* (1904); von der Decken's extensive *Reisen in Ost Afrika* (1870); Canon Tristram's *Fauna and Flora of Palestine*; Rochebrune's *Faune de la Sénégambie* (1884); Levaillant's *Oiseaux d'Afrique* (1799–1808), and the fauna described in the *Histoire physique, naturelle et politique de Madagascar* (1875–84) by Alphonse Milne-Edwards, Alfred Grandidier, and others.

The period under consideration Nordenskiöld describes under the caption 'from natural philosophy to modern biology'. Prominent among the pioneers (and an early one) that contributed to its brilliant episodes was Erasmus Darwin (1731–1802), the grandfather of the illustrious Charles. He was a medical practitioner in Lichfield. He wrote many papers for the Royal Society but the treatise that made him most widely known (apart from his relationship to his famous descendant) and which was translated into several continental languages is his *Zoonomia* (1794), a peculiar but original thesis in which the author attempts to formulate the laws that govern the origin and progress of animal life.

Among the first of the comparative biologists in the modern sense may well be placed the versatile Étienne Geoffroy Saint-Hilaire (1772–1844). Born near Paris, he entered the priesthood but, despite this handicap, was appointed professor of zoology by the Republican Government and at once showed himself to be, among other accomplishments, a brilliant anatomist. He accompanied Bonaparte to Egypt as zoologist and contributed to the immense illustrated folios of the *Description de l'Égypte* (q.v.) in which are recorded the activities of the numerous scientific observers on the exploration staff of Napoleon. Later he went, also under Napoleon's orders, to 'collect' specimens from Portuguese museums to enrich the French State, much as his master was wont to 'transfer' old masters from the galleries of Italy to the Louvre and similar collections. Saint-Hilaire's rivalry with Cuvier, in which Goethe supported the former, is well known; it continued until Saint-Hilaire's death. His studies in comparative anatomy were mostly upon the osteology of vertebrates, while his speculations as to the evolution of the larynx and ear in mammalia and birds based on actual dissection, are likewise well known.

It was in 1777 that Francesco Cetti wrote his several monographs on the vertebrate zoology of Sardinia.

Johann Friedrich Blumenbach (1752–1841) requires a few lines since, in addition to his studies in anthropology (*Anthropological Treatises*, &c., trans. 1865), he made valuable observations on the comparative anatomy of the higher apes and other animals; and his soubriquet of 'Magister Germaniae' was in part given him because of his introduction into the Fatherland of this very study of comparative anatomy—several years before Cuvier introduced it into France.

The Chevalier de Lamarck (whose family name was de Monet) (1744–1829), cadet of a poor but noble family of Picardy, eventually rose to fame and wide influence in the scientific world. Of the many literary contributions he made to biology we are mostly interested in his *Philosophie Zoologique*, 1809, the second

edition of which was published in 1830, and his earlier work, *Recherches sur l'organization des corps vivants*, 1802. In the former treatise he develops a theory of animal evolution—the development of life in nature—which suggests the coming of Darwinism.

Baron Georges L. C. F. D. Cuvier (1769–1832), of French Huguenot extraction, was born in the Duchy of Württemberg. Although very poor he applied himself with absorbing diligence to his collegiate studies and rose during and after the Napoleonic era to occupy the most influential position in the world of natural science of any man of his country. His treatises on comparative anatomy, in the preparation of which he was greatly assisted by Duméril (q.v.), and his essays on classification of the animal kingdom are too well known to students of natural history to require extended comment. His *Règne animal*, 1817, passed through numerous editions and translations into all the European scientific tongues, many of which are shelved in the McGill libraries. One must not pass over, either, his studies in paleontology. His celebrated work, *Recherches sur les ossemens*, 1812, is a work that ushered in the modern study of that science.

Of the many earlier nineteenth-century histologists, whose researches became so much more efficient by the employment of modern laboratory methods, few devoted themselves largely to pure zoology. In passing, mention may be made of one of these—Theodor Schwann (1810–82), a gentle soul, son of an obscure bookseller in a small Prussian town. He became professor in Louvain and Liége and is best known for his cell-theory, first fully developed in his *Mikroskopische Untersuchungen der Tiere und Pflanzen*. J. J. Walsh (*Makers of Modern Medicine*, 1907) gives a good account of the life and works of this eminent man.

Richard Owen (1804–92), contemporary of Johannes Müller, was born in Lancaster, the son of a merchant. His fame as a naturalist seems about equally divided between comparative anatomy and paleontology, but his activities, as curator of the Hunterian Museum and as keeper of the Natural History Branch of the British Museum at South Kensington (until he was 80 years old) kept him in touch with all departments of biological research.

Johannes Peter Müller, a pioneer in experimental physiology and one of the most popular and brilliant of German biologists, was born the son of a shoemaker at Coblenz in 1801. He took his degree in medicine and in 1830 was appointed professor of chemistry at Bonn, a position he held for nearly 30 years. His work in oceanic zoology and his researches in comparative histology interest us most, especially as he (late in life) was engaged almost exclusively with (the lower) vertebrates. He published a well-known monograph on the lancet fish (amphioxus) and spent over nine years on the skeleton, nerves, and muscle system of the Mixinoidei—those borderland vertebrates, a study of whose minute anatomy throws so much light on the structural development in the higher forms.

Mention has several times been made of the hundreds of works in all languages on 'game' animals and their pursuit in the interests of so-called sport. These publications are among the earliest printed works on zoology.

Although the Compiler views with a mixture of contempt and wonderment the chase after inoffensive animals by men armed with high intelligence and higher power guns, and although he seems unable to comprehend the cruel murder of beautiful and often useful fellow creatures for the mere gratification of the lust to kill, yet he freely admits that accurate accounts and records of fauna now under discussion are frequently found as part of these melancholy tales of slaughter. For this reason alone they are included in the present volume, in the hope that when the veneer of civilization (with which some humans seem to be very thinly smeared) is exchanged for the thicker varnish of a rational pity and a feeling of animal brotherhood, these publications and the acts that prompted them will be only a memory of centuries that have long passed away.

CHAPTER IX

SOME IMPORTANT ZOOLOGICAL TREATISES AND SERIALS PUBLISHED DURING THE NINETEENTH CENTURY — MONOGRAPHS ON LOCAL FAUNAS — TEXTBOOKS ON ZOOLOGY — REPORTS OF EXPLORATIONS AND SURVEYS — THE MODERN LITERATURE OF VERTEBRATE BIONOMICS.

H. Stannius—P. L. and W. L. Sclater—M. Neumayr—Treatises on Paleontology—Zittel—Cope—W. K. Parker—Woodward and Smith—Flower and Lydekker—Ernest Ingersoll—Beddard—W. K. Gregory—D. G. Elliot—H. F. Osborn—Scudder—Theodore Palmer—H. G. Bronn—Cuvier and Saint-Hilaire—De Blainville—R. P. Lesson—T. H. Huxley—Giebel—Vogt and Specht—Alex. Wilson—Prince Chas. L. Bonaparte—J. J. Audubon—Prince Wied-Neuwied—Monographs of Local American Faunists—Giraud—T. M. Brewer—P. R. Hoy—Bailey—Dawson—Lewis and Clark Expedition—Thos. Say—W. E. Leach—Edward Sabine—De Kay—P. Pallas—Thomas Nuttall—Reinhardt—N. A. Vigors—Capt. Beechy—C. P. Holböll—Titian Peale—W. Gambal—Geo. A. McCall—George N. Lawrence—John Cassin—S. F. Baird—Sir John Richardson—Elliott Coues—Louis Figuier—British Museum Handbooks—Wm. Bingley—Starke and Sclater—Jerdon—Blanford—Anthropologic Journals and Treatises—W. P. Pycraft—S. J. Holmes—W. Bateson—Local Societies and their Organs—(American) Journal of Mammalogy—Laboratory Experimentation—Heider and Korschelt—Louis Roule—Hertwig—Societies for the Protection of Animals—T. S. Palmer—Gilbert Pearson—Alex. Wetmore—Ray and Willughby Societies.

IT is a task of no small difficulty to choose from the voluminous nineteenth-century literature on vertebrate zoology a satisfactory list of representative titles. However, here are a few of the more important.

As early as 1856 H. Stannius wrote a very useful treatise on amphibian anatomy, *Zootomie der Amphibia.*

A revival of interest in the distribution of animal life on the earth led to the appearance in 1896 of Lydekker's *Geographical History of Mammals,* Cambridge, followed by the Sclaters, father and son, who published (1899) in London their valuable *Geography of Animals.*

In 1862 J. A. Gaudry presented his classic treatise, *Animaux fossiles et geologie de l'Attique.*

In 1873 Kowalevsky wrote his systematic treatise entitled *Versuch einer natürlichen Classification der Fossilen Hufthiere.*

Nicholson and Lydekker published in 1889 their useful two-volume *Manual of Paleontology.*

An ambitious project by Melchior Neumayr (1845–90) began to appear in 1899—*Die Stämme des Thierreichs.* This natural philosophy of extinct animals is here treated by an eminent Austrian but, unfortunately, the great work was never completed and much of the published matter treats of invertebrates.

In 1898 Woodward and Smith published a classic textbook, *Outlines of Vertebrate Paleontology,* that should be known to all students of the subject.

On the whole the most important German treatise (later translated into English) that takes up the entire subject is von Zittel's *Handbuch der Paläontologie,* Leipzig, 5 vols., 1876–93.

8 10 31 British Museum (N.H.)

y dear Casey Wood

I have read your McGill Catalogue with extraordinary nterest and profit and heartily congratulate you on your clear yet oncise account of Zoological Literature. My profit was largely on he oriental side but I think that those who take the trouble to read he European side will not omly be greatly helped but find their work n whatever direction greatly enhanced in interest and value by such knowledge. As for critism I have only noted two slips, I suppose oodward and Smith on p. 58 is really Arthur Smith Woodward and n p. 60 G. Ord's paper was in Guthrie not Guenther. Best wishes hank you for the copy and renewed congratulations on this important roduction Over yours sincerely

Davis Thackeray

Look it up

A philosophic work, mostly paleontologic, is Chas. Depéret's *Les Transformations du Monde animal*, Paris, 1907.

Cope's *Primary Factors of Organic Evolution*, Chicago, 1896, furnishes the author's views on the relations of paleontology to Darwinism.

Several large, popular and well illustrated volumes on 'animals of the world' appeared during 1884, including Cassell's *Natural History*, N.Y., and the *Standard Natural History*, Boston. These works contain much of value to the student of mammalogy.

In 1885 W. K. Parker wrote his scientific treatise *On Mammalian Descent*.

During 1859–97 appeared the monumental and as yet unfinished systematic H. G. Bronn's *Klassen und Ordnungen des Thier-Reichs*, written in collaboration with several well-known zoologists. This fine treatise is noted especially for the attention to anatomic details.

In 1891 Flower and Lydekker issued their excellent work on *Mammals, Living and Extinct*.

During 1907 appeared the second edition of Ernest Ingersoll's dependable volume on the *Life of Animals*.

In 1910 W. K. Gregory wrote his monograph on the *Orders of Mammals*, N.Y.; and one must not forget the communication on the same sub-class contributed in 1902 to the Cambridge Natural History series by Beddard.

D. G. Elliot's well known *Synopsis of Mammals* was published at Chicago in 1901. It is a systematic and technical treatment of the subject. In 1910 appeared H. F. Osborn's *Age of Mammals in Europe, Asia and North America*.

In 1904 D. G. Elliot brought out his work—a very creditable one—on the mammals of the West Indies and Middle America.

Reference may again be made here to S. H. Scudder's *Nomenclator Zoologicus*, 1882–4, a most useful alphabetical list of all generic names to 1879, with a Supplement.

A reference work of distinct value to advanced students is Theodore Palmer's (1904) *Index generum mammalium*. One meets with it now and then in the form of an author's separate. It was first contributed, as No. 23, to *North American Fauna*.

Here the Compiler wishes to refer to and to advise perusal by the student of important French monographs on mammals—that of Cuvier and Saint-Hilaire, *Histoire naturelle des mammifères*, Paris, 1824; the wonderfully illustrated treatise by De Blainville (1839–64) in four quarto volumes, Paris—*Ostéographie des Mammifères*, and the ten-volume treatise of R. P. Lesson, *Histoire naturelle des Mammifères et des Oiseaux*, the last-named one of the Buffon suites, first edition 1828, second 1840.

In 1871 T. H. Huxley brought out his well-known *Anatomy of vertebrated animals*, in which mammals are given a large share of attention.

Giebel, in 1874, contributed the article on *Die Säugethiere* to Bronn's *Klassen u. Ordnungen des Thierreichs*.

Vogt and Specht published at Munich in 1883 *Die Säugethiere im Wort und Bild*, a widely copied and popular treatise, much of whose text and most of whose excellent plates form the chief attraction of many a subsequently published domestic and foreign book on mammalogy.

We must bear in mind that it was during this period that Alex. Wilson (1766–1813), J. J. Audubon (1780–1851), and Prince Charles Lucien Bonaparte (1803–57) (most of whose works are found on the shelves of the McGill libraries) carried on their famous observations of American bird life and published their wonderfully illustrated treatises. The Compiler prefers to refer the reader to the annotated titles of these celebrated zoologists in the Catalogue rather than to attempt an evaluation of their works here.

An exception must, however, be made to Audubon's *opus magnum* the *Birds of America* (1827–38), elephant folio, 4 vols., 435 hand-colored plates, reproduced life-sized drawings. With the exception of the French Government *Description de l'Égypte* (q.v.) this huge atlas of

American avifauna forms the largest volumes ever issued on vertebrate zoology. Moreover the life-size plates (determined by the measurements of the wild turkey-cock) are reproductions of the largest drawings of animals known to librarians. For more than a century it was believed that the Audubon drawings were the largest portraits of birds known to collectors—most of the originals of which are now deposited in an American Museum. This belief was held until the discovery in 1924 of several hundred life-size paintings made by Lady Elizabeth Gwillim, Madras, 1800–6, of Indian vultures, eagles, and storks; now in the Blacker collection. The reader is referred to the Catalogue for a further description of these unique orignals, that antedate Audubon.

About this time, also, Prince Maxmilian of Wied-Neuwied (1782–1867) visited various sections of the American continents and reported his zoological observations in a number of valuable and well-illustrated volumes, among them *Reise nach Brasilien in den Jahren 1815–1817*, 2 vols. with atlas, Frankfurt-am-Main. He also wrote a *Reise in das innere Nord-America in . . . 1832 bis 1834*, also 2 vols. with atlas, folio, Coblenz, 1838–41, as well as a *Verzeichniss der auf seiner Reise in Nord-America beobachteten Säugetiere*, Berlin, 1862.

Several of the local American faunists—very numerous in the nineteenth and twentieth centuries—have been mentioned with their writings. Of the early writers we should not forget Jeremy Belknap (*History of New Hampshire*, 1792); Samuel Williams (*History of Vermont*, 1794); Samuel Hearne (*Hudson's Bay to the Northern Ocean*, 1795), all of importance; W. B. O. Peabody's *Birds of Massachusetts*, 1839; Giraud's *Birds of Texas*, 1841; the same writer's *Birds of Long Island*, 1844, are elsewhere commented on; J. H. Linsley's *Birds of Connecticutt*, 1843; Thomas Mayo Brewer's *Birds of Massachusetts*; the Bairds' (Wm. M. and S. F.) *Lists of the Birds of Carlisle*, Penn.; S. W. Woodhouse on the *Birds of the Southwest*, later, also, by A. L. Heermann and T. C. Henry; Zadock Thompson's *Natural History of Vermont*, 1842; P. R. Hoy's *Birds of Wisconsin*, 1852; the *Birds of Ohio* by M. C. Read, as well as by Dawson and Robert Kennicott, and much later productions, Bailey's *Birds of Virginia*; Dawson's *Birds of California*, and the *Birds of the State of Washington* by the same author. See the appended Catalogue.

The earlier writers on the local fauna of North America were followed during the succeeding fifty years by numerous naturalists who covered very thoroughly every state in the Union.

The Lewis and Clark *Travels to the Source of the Missouri River*, London, 1814 (and several other editions), must be mentioned here, inasmuch as Wilson made use of much of the material gathered by that famous expedition. This was done in conjunction with George Ord (1781–1866) whose important contributions to American ornithology are emphasized in ~~Günther's~~ *Geography*, 1815.

Thomas Say (1787–1834) and others also wrote upon the zoological results of several expeditions within the limits of the United States, for example a *Narrative of an Expedition to the Sources of St. Peter's River in 1823*, led by Long. Towards the end of the Wilson period Wm. E. Leach (1790–1836) and Edward Sabine (1788–1883) furnished reports on American Arctic fauna as a result chiefly of the exploring expeditions of Parry, Franklin, and Ross.

Some of the later and numerous State publications had something more than a strictly local value; e.g. the important *Zoology of New York* in 6 vols., 1842–4, published by De Kay in 5 vols. as part of the 20-volume Natural History of that State. Many other States followed the example set by New York.

An outstanding contributor to the zoological literature of America was the famous Spencer Fullerton Baird (1823–87) who, as Secretary of the Smithsonian Institution for many years, was a recognized leader in the scientific world. His labors and writings are too numerous for annotation here but his best known monographs on North American fauna

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appear as contributions to government publications, both State and Federal, among them the *Mammals of North America*, 3 parts, many colored plates, 1859; a *Catalogue of North American Birds*, &c., 1858; *Birds of North America*, Phila., 1860, written in conjunction with J. Cassin; and *A History of North American Birds*, with T. M. Brewer and Robt. Ridgway, 3 vols., Boston, 1874. Most of Baird's important publications are shelved in the McGill libraries.

To this period belongs also Peter Pallas' celebrated, rare, and valuable 3-volume *Zoographia Rosso-Asiatica* [1811–(42)] with its second edition, reprints, and addenda. This treatise and others by the same author are very important for American zoologists as they describe many new Arctic species, especially those faunal forms that are now (or were) found in Alaska.

In the Catalogue and elsewhere in this Introduction the Compiler has given brief notices of the works of three more zoologists who contributed so remarkably to the Audubon period of American faunal literature—Richardson, Swainson, and Nuttall. To these one must add at this juncture the contributions of the Danish naturalist, J. C. H. Reinhardt (1776–1845), on the fauna of Greenland (1838); the report by N. A. Vigors (1839) on the zoology of Capt. Beechey's famous *Voyage*; the description by C. P. Holböll (1795–1856), of the avifauna of Greenland, and the equally important contributions to the faunal life of America by S. W. Woodhouse, William Gambel, George A. McCall, and Titian Peale.

It was about this time that four names of American zoologists—several times mentioned elsewhere in this Introduction—shone with a scientific light of the same quality as that with which Wilson, Audubon, and Bonaparte illuminated the world of vertebrate zoology. They are Cassin, Baird, Lawrence, and Brewer.

John Cassin (1813–69) is best known for his zoological (especially ornithological) reports on the Wilkes Exploring Expedition, on Commodore Perry's Japan Expedition, on the Gillis Expedition to Chili, and for his *Illustrations of the Birds of California* (1853–6)—a large octavo volume with fifty colored plates. The outstanding character that was especially Cassin's is his equal familiarity with Old World and Neotropical species. His works should be carefully reviewed by students of vertebrate zoology. Among the minor and yet important works of this naturalist is the series of catalogues (1849–53) of birds in the collections of the Academy of Natural Sciences, Philadelphia.

George Newbold Lawrence (1806–95), one of the Couesian 1853–8 triad (comprising in addition Baird and Brewer), is best known to us for his work on the ornithology (and mammalogy) of Central and South America, and for his collaborations with his two compeers. Full justice to his several activities is furnished in L. S. Foster's biography of this well-known writer.

Thomas Mayo Brewer (1814–80), another person of this trinity, who, apart from several treatises written in conjunction with others, distinguished himself as the father of North American öology, his published work (pp. 140 and 5 pl.) on that subject unfortunately proceeding no further than Part I, 1857. It was in 1874 that he published the first part of his famous *History of North American Birds*, to be completed by others after his death.

Although mention has several times been made of the *zoologica americana* entirely produced or mostly inspired by that versatile writer and naturalist Spencer Fullerton Baird (1823–77) he still deserves, what lack of space forbids, another page all to himself. The reader is advised to make himself acquainted with the celebrated *Pacific Railway Reports*. The volumes devoted to zoology are not only useful for a study of North American fauna but they cast much light on the career of Professor Baird. For his other numerous single and conjoint volumes the student is referred to G. B. Goode's bibliography as well as to the titles in the appended Catalogue.

At this juncture the Compiler desires to draw attention to that magnificent series of mono-

graphs entitled *Fauna Boreali-Americana; or the Zoology of the northern parts of British America*, 3 vols. (4 pts.), many colored plates, edited 1829–37 by Sir John Richardson. He wrote on the fishes, quadrupeds, and, in collaboration with W. Swainson, the birds. Richardson was an indefatigable explorer and writer on the zoological results of the expeditions in which he took so prominent a part. These included the two governmentally conducted voyages to the North Pole in search of Franklin and (in 1845) another made chiefly on his own responsiblity. The records of these voyages will be found in the appended Catalogue.

In many respects Elliott Coues (1842–99) was the most brilliant writer on vertebrate zoology America has so far produced. Certainly his *Field Ornithology* (1874) and his *Key to North American Birds* (1872) with their numerous subsequent editions are still the standard textbooks for students of North American bird life, while his famous *List of Faunal Publications relating to North American Ornithology* (down to 1880) has so far been unsurpassed. One must bear in mind his *Fur-Bearing Animals* (1877) and other treatises that furnish evidence of his wide knowledge of faunal life in general. His many contributions to the literature of vertebrate zoology are listed in the appended Catalogue.

In 1850 John E. Gray wrote his *Hoofed Quadrupeds* (as part of the Knowsley Hall output) with 62 colored plates.

Typical examples of popular and well-illustrated works on vertebrate zoology on the market in recent years are two series published in America during 1884. These are Cassell's *Natural History*, N.Y., and the *Standard Natural History*.

As a contribution to comparative psychology, K. Groos has given us an entertaining book, *The Play of Animals*, 1900.

In 1901 Frederic Lucas wrote a popular but serious contribution to paleontology, *Animals of the Past*, N.Y.

Mention may once more be made of that extensive, popular treatise, Hutchinson's *Animals of the World*.

During 1837 H. G. L. Reichenbach contributed to German faunal literature his *Deutschlands Fauna*, the first and second parts being devoted to mammalia and birds.

The important atlas of C. J. Lorek appeared in 1834–7, entitled *Fauna Prussica*, and depicts (130 col. pl.) the principal faunal forms of North Germany.

Thomas Huxley, in 1871, published his famous *Anatomy of Vertebrated Animals*, long to remain a popular textbook on that subject.

Although they are not regarded as strictly scientific literature yet one must not pass by the interesting, rather early and much translated series of books, mostly on prehistoric zoology, by Louis Figuier, full titles of which are listed in the appended Catalogue.

For the past half-century the Trustees of the British Museum have published a long array of Catalogues and Handbooks on Vertebrate Zoology that have been of incalculable value to students and systematists. They are rich sources of information upon which innumerable book-makers have drawn for materials both textual and illustrative. Every natural history library should have and every advanced student of vertebrate zoology should familiarize himself with these indispensable monographs.

William Bingley (1774–1823) published a number of semi-popular works on mammalogy during the early nineteenth century, among them *Memoirs of British Quadrupeds*, 1809.

In 1900–6 Stark and Sclater published their classic work on the *Fauna of South Africa*.

Quite worth the student's attention is T. C. Jerdon's *Mammals of India*, 1867.

A very useful work is Blanford's *Zoology of Persia*, London, published in 1876, followed (1888–91) by the volumes on *Mammalogy*, in the *Fauna of British India*.

During this period, also, appeared numerous travelers' accounts of Asiatic natural history, among them Alcock's *Naturalist in the Indian Seas*; Hickson's *Naturalist in North Celebes*;

Siedlecki's *Java*, and many more of the same type.

Although the Compiler has no intention of recording even the principal works on anthropology that are to be found on the shelves of the McGill libraries, a few titles in the Blacker Library are especially desirable for students, among them several sets of periodicals—the *Journal of the Anthropological Institute of Great Britain and Ireland*, 1872 to date; *The Anthropological Review*, 1863–70; *Transactions*, *Journal*, and other publications of the *Anthropological Society of London*, 1863–71; *Man*, as well as such monographs as Huxley's *Man's Place in Nature*, 1863; J. F. Blumenbach's *Anthropological Treatises*, and similar works, for which consult the Student's Index.

Somewhat later there was published a work of classic importance, W. P. Pycraft's *Courtship of Animals*, 1913.

S. J. Holmes' *Studies in Animal Behaviour*, published in 1916, is well worth the student's attention.

Still later appeared a textbook by T. H. Morgan and others, *The Mechanism of Mendelian Heredity*, 1919.

One of the best authorities on animal heredity is W. Bateson, whose works are listed in the appended Catalogue.

In 1920 was published the two-volume edition of Dendy's *System of Animate Nature*.

E. N. Harvey published, also in 1920, *The Nature of Animal Life*.

Many of the British local societies issuing worth-while zoological periodicals have been mentioned but many more remain to be noted, among them the Cardiff Naturalists' Society, founded in 1867, with *Transactions* regularly published since 1870. Another of the lesser organizations that might be mentioned, as typical of a hundred others, is the Woolhope Naturalists' Field Club (founded in 1851) whose *Transactions* have been regularly issued since 1856.

Reference has before been made to the many local natural history societies in all countries and their numerous publications—mostly popular in character. These associations are unusually common throughout German lands, a typical example being the *Naturforschender Verein in Brünn* whose *Verhandlungen* have been regularly published since 1863.

The *Société d'Histoire Naturelle* of Colmar, founded in 1859, has been publishing its important *Bulletin* since 1860.

Reference has been made to several South American foundations of importance in a study of vertebrate zoology. One of these is the Argentine Museu Nacional (founded in 1818) whose *Archivos* and *Revista* have appeared since 1876.

In addition to North American Societies and their publications elsewhere noted, the Buffalo Society of Natural Sciences, founded in 1861, has published its important *Bulletin* since 1873.

In 1853 was founded a very important American center for natural science research, the California Academy of Sciences; since that date the Academy has regularly issued *Proceedings* and (later) a *Bulletin*.

In 1860 was founded the now famous Museum of Comparative Zoology, at Harvard University. Since 1861 it has published a number of periodicals of great value to students of vertebrate zoology, chief among them the *Bulletin* (1863) and *Memoirs* (1864).

The most important special periodical published in the U.S.A. on the subject of its title is the *Journal of Mammalogy*, organ of the American Society of Mammalogists (founded in 1919).

Among the comparatively recent societies of Italian origin is the *Accademia Gioenia di Scienze Naturali* of Catania, founded in 1824 and publishing several periodicals, *Atti* and *Bullettino*, since 1825.

A recent foundation in Italy (1900) is the *Unione Zoologica Italiana* that has published the *Archivio Zoologico* since 1902.

Once more and before leaving the subject, the Compiler draws the attention of librarians and research students to the fact, not sufficiently emphasized, that the publications of the Natural History Department of the British

Museum offer extremely valuable and informative scientific literary material in most sections of biology. This Introduction and Index cannot, unfortunately, do more than mention a small fraction of these invaluable publications, but the Compiler advises the advanced student in particular to search the British Museum and this Catalogue for such additional zoological titles upon which he may be seeking information.

The literature of zoology has, in recent years, recorded the results of *laboratory experimentation*, especially along evolutionary and hereditary lines. A good review of this work is found in Cunningham's *Modern Biology*. Treatises, essays, reports, and articles on *ecology*, *physiology*, *biochemistry*, *embryology*, *histology*, *cytology*, *economic zoology*, and *experimental zoology*[1] also show a decided increase, especially as monographs and in periodical writings, thus emphasizing the contention of the Compiler, elsewhere stated, that by far the most important and up-to-date portion of our twentieth-century literature on the varied relations of vertebrate zoology is to be found in serials, magazines, and journals devoted to that subject.

Of the many modern textbooks on the comparative embryology of vertebrates listed in the present Catalogue, some of which have already been mentioned in this Introduction, the four-volume *Lehrbuch* of Heider and Korschelt (1902–10) is to be recommended to the advanced student.

One of the most complete and erudite of the many treatises on embryology with a basis in comparative anatomy is Louis Roule's *L'Anatomie comparée*, &c., 1898.

Another and better known treatise on the same subject is Hertwig's *Lehrbuch der Entwicklungsgeschichte*, 6th ed., 1898.

Societies for the care of and prevention of cruelty to animals have been founded in most civilized countries and their organs for propaganda regularly published. Among the best known is the very useful and important Society for the Prevention of Cruelty to Animals, in England. In Italy, as a further example, the *Associazione romana per la protezione degli animali*, as well as a recently organized Society for the Protection of Birds, have been formed and are doing admirable work.

The literature of bird protection has several times been mentioned in the present volume; and many societies have issued (propaganda) literature and periodicals devoted to the good cause, the bulletins and transactions of the *Royal Society for the Protection of Birds* in England, and the Audubon Societies in America, for example. Similar associations, with their attendant literary output, have long been established in Germany and elsewhere in Europe. Practically all these sets of serials and journals are listed in the appended Catalogue.

One of many essays on bird protection in America is Theodore S. Palmer's *Legislation for the Protection of Birds*, Washington, 1900.

The recently formed (1929) International Committee for Bird Protection has issued a *Bulletin* under the editorial management of Gilbert Pearson which surely will be productive of much good.

The protection of animals, whether avian, mammalian, or piscian, from their most dangerous and persistent enemy—man—is an end devoutly to be wished. The human creature, with all his boasted development from the troglodyte condition, is still largely a savage. The urge to adventure on mountain, jungle, or sea that some unfortunate animal, especially if attractive because of its superior size, beauty, or supposed food value, may be murdered *secundum artem* cannot be resisted by the so-called sportsman. The lust to kill for the sake of killing dominates many a man, otherwise a model citizen, a kindly husband, and an excellent father. These contradictory elements in human character seem to justify the poet's lines:

> 'The more', said one, 'of men I see,
> The more do dogs appeal to me.'

[1] In this connection the student should have access to the valuable *Journal of Experimental Zoology*.

On those rare occasions when the sportsman realizes more or less clearly that he is guilty of something he ought to be ashamed of, instead of telling the world all about it in print, he is pretty sure to disguise his killings under such titles as 'A Hunter and Collector with Rod and Gun in Utopia', or 'Travels of a Sporting Naturalist in the Paradise Islands', and so on; or perhaps he salves his conscience by presenting a museum or zoological society with a few pelts, horns, or birdskins, and hires some one to make a list of systematic names in Appendix A. The Compiler has no quarrel with legitimate and rational collecting for scientific purposes alone, but he has lived long enough to see the extinction of some of the most charming and lovable birds and mammals on earth through man's insensate greed and stupid barbarism. For example, according to reliable authorities, gunners in the United States take toll of the wonderful wild ducks and geese of that country to the number of quite 10,000,000 every year. This wholesale, needless slaughter, combined with the extensive drainage of marshlands and ponds (the destruction of feeding grounds) has resulted in an enormous decrease in the annual migration of these 'game birds' despite the establishment of sanctuaries, gun-club rules, and the passage of local, federal, and international laws. If this 'sport'—legal and illegal—continues as it is now carried on, in twenty years such birds as the beautiful Wilson Goose will be as rare as the exterminated Sandhill Crane or the Trumpeter Swan.

An attempt to preserve threatened faunal life in general is the purpose—rather vain, perhaps—of the *Conférence Internationale pour la Protection de la Nature*, whose illustrated *Recueil des Procès-Verbaux* of the 1913 meeting, pp. 247, was published in Berne in 1914.

What will be the end of the present propaganda now carried on, chiefly by Gilbert Pearson, in a similar effort for the preservation of avian life, remains to be seen. In any event the attempt is at least an advance on the previous world attitude—viz. indifference to and complete ignorance of even the difficulties of the problem.

As pointed out by Dr. Wetmore (*Encycl. Brit.*, 14th ed., p. 918), bird protection, when properly enforced, is a potent factor not only for the salvation of species but in greatly increasing the numbers of many useful birds. He says that in the United States 'there are 76 bird reservations under jurisdiction of the Department of Agriculture, ranging in size from a few acres to several hundred square miles, while light-house reservations, national parks, and similar tracts under supervision of other governmental departments have also been designated as bird preserves. In addition, various States are now developing the idea of game sanctuaries which are also refuges for birds. Pennsylvania, at the present time, has 88 sanctuaries of this kind, including nearly 73,000 acres. Private sanctuaries are also multiplying and afford much protection; many have been established as local enterprises by cities, towns, or by groups of private individuals'.

The United States Governments, in conjunction with private enterprise, are doing what they can to prevent the extinction of that largest of the deer, the American Elk (Wapiti), of which about 40,000 head still survive of the vast herds that once roamed the mountains of North America. Starvation, as the result of unusual winters, restriction of feeding areas, and savage butchery by 'sportsmen' of unprotected herds during the 'off' season, are slowly reducing the numbers of this beautiful, inoffensive mammal.

The student of faunal literature has been much assisted by the formation of Societies for the reprinting and editing of rare books, and occasionally for the publication of manuscript treatises that held no prospect of financial gain. Of these useful and numerous associations in Europe and America the Willughby Society and the Ray Society (founded in 1844) stand pre-eminent. Among the first issues of the latter was the *Bibliographia Zoologiae* of J. L. R. Agassiz, edited by H. E. Strickland (q.v.).

CHAPTER X

SOME IMPORTANT ZOOLOGICAL TREATISES PUBLISHED DURING THE NINETEENTH CENTURY, CONTINUED — MONOGRAPHS ON LOCAL FAUNA — TEXTBOOKS ON VERTEBRATE ZOOLOGY — THE LITERATURE OF VERTEBRATE BIONOMICS.

Reports on Captain Cook's Voyages—Pallas—Pennant—Lyonnet—De Geer—O. F. Müller—Cavolini—Della Chiaje—Ledermüller—A. Trembley—Lamarck—R. Owen—Agassiz— Johannes Müller—J. H. Blasius—Rathke—Meckel—J. V. Thompson—the Van Benedens—Claparède—Dalyell—Sars—Allman—Inventors of classifications schemata—H. Milne-Edwards—R. Leuckart—Thos. Huxley—The Microscopist-naturalists, von Leeuwenhoek and Malpighi—Works of the morphologists, Carl G. Carus, Kielmayer, Gotthelf Fischer, Dallinger, F. Tiedemann, Bojanus, J. F. Meckel and C. A. Rudolphi—Treatises on biochemistry by Theodore Schwann—Bionomics—The Far East in Nineteenth-Century Zoological Literature—Bélanger—The Siebold Family—Temminck and Schlegel—Mauritius and its Naturalist Visitors—African Zoology—Andrew Smith—W. L. Distant—Clapperton and Denham—W. C. H. Peters—Von der Decken—Napoleon's *Description de l'Égypte*—Ehrenberg and Hemprich—P. E. S. Rüppell—E. Fenzl—P. Bleeker—C. T. Lefèbvre—M. T. von Heuglin—M. F. Wagner—W. L. Sclater—Webb and Berthelot—Bory de Saint-Vincent—R. T. Lowe—Robert Ridgway—Ornithology of Hawaii—Zoology of the West Indies—Léotaud—Charles Cory—Lambeye—Alex. Wetmore—Literature of Canadian Fauna—de la Hontan—Thos. Nuttall—McIlwraith—Taverner—Ross—Chamberlain—Elliott Coues—Bendire—Examples of Monographs on particular Species and Genera—Paleontology—R. Owen—Woodward family—C. G. Ehrenberg—Dictionaries of Natural History—P. H. Gosse.

THE interval in time between Linnaeus and Darwin is marked by numerous and important additions to the literature of zoology. A few of these have already been mentioned; others are Solander and Banks, who reported on the zoology of the first of Captain Cook's famous voyages; Peter Simon Pallas (1741–1811), writer on the fauna of Siberia; Thomas Pennant, famous for his descriptions of British fauna; Lyonet (1707–89) and De Geer (1720–78), both naturalists of note; O. F. Müller, Cavolini (1756–1810), Della Chiaje (fl. 1828), Ledermüller (1719–69), and Abraham Trembley (1710–84)—all observers adding to the literature of lower-animal—mostly aquatic—forms of life.

The publication of the Linnean system greatly stimulated definite descriptions of zoological types and a decided improvement was henceforth noticeable in the literary quality of monographs on zoological subjects.

A brief account is elsewhere given of the career of J. B. P. Lamarck (1744–1829), a celebrated French naturalist who introduced the term *invertebrata* into the nomenclature of zoology. He was at first a professor of botany, but late in life, and before he became blind, he turned his attention to zoology, his greatest work on that subject being the *Histoire Naturelle des Animaux sans Vertèbres*, 1815–22. In general he may be regarded as a supporter of Linnaean doctrines and in many particulars

he saw eye-to-eye with and was one of the forerunners of Charles Darwin.

A still more celebrated zoologist—elsewhere noted—was the famous Baron Georges Cuvier (1769–1832) who early devoted his life to the study of biology and, among many other scientific activities, instituted views of animal life largely based on anatomical research; indeed it was he who first emphasized the importance of anatomy as the *chief basis* for a systematic classification of the animal kingdom.

Another product of the nineteenth century several times mentioned, and perhaps the best known of Cuvier's disciples, is Richard Owen (1804–92), a great authority on the paleontology, morphology, and histology of many forms of faunal life. In common with the writers above mentioned Owen published a classification picturing his views of the relationship of members of the animal kingdom, all of which is reflected in the zoological literature of the writer's day and generation.

Here the Compiler draws attention to the extensive and valuable zoological works of the distinguished Russian writer, J. F. Brandt. Among his treatises in the Blacker Library are *Mammalium exoticorum . . . descriptiones et icones*, 1835, and *Descriptiones et icones Animalium Rossicorum*, 1836.

About this period the teachings and writings of German zoologists became prominent in the scientific world, and we note a corresponding change in and additions to theoretical classifications that, in the main, were built upon histological research in which the microscope played the most outstanding role. Agassiz in his *Essays on Classification* (1859) gives a fair account of these publications.

The name of that brilliant genius Johannes Müller (1801–58) often recurs in these pages. He was probably the greatest investigator of the internal structure of animals, and one associates his name with that of his predecessor Rathke (1793–1860) and of Meckel (1781–1833). Of Müller's numerous and important memoirs that on *Amphioxus*, Berlin, 1844, may be cited as a model of accurate and complete scientific observation and illustration.

Somewhat later (1857) J. H. Blasius published his *Säugethiere*, an octavo of 550 pages, as part of a general zoology of Middle Europe.

Among other writers of this period was the Army Surgeon, J. V. Thompson, whose papers on marine invertebrates are in a class by themselves. With him may be mentioned, as students of Oceanic fauna, the senior Van Beneden, Claparède, Dalyell, Sars, and Allman.

There follows, during this period, a long array of important investigators and writers at least three of which are distinguished as the inventors of classification systems well known to students of zoology. These are Henri Milne-Edwards (1800–84) (see, in particular, his *Recherches anatomiques*, 1845–9, and his *Anatomie comparée*, 1857–81); Rudolph Leuckart (1823–98); and Thos. Huxley (1825–95), whose monographs dealing with their particular systems are listed in this Catalogue. Of these three classifications that of Huxley has influenced most the changing nomenclature of our present-day systems. He it was who insisted that a rational classifying of fauna should comprise with meticulous accuracy the whole structure, microscopic as well as gross, of all animal forms, including not only their adult structures but their development *ab ovo* to maturity.

Thomas Huxley was the son of a poor schoolmaster. Born in London he became one of the most famous biologists of his day. He served as surgeon in the English Navy and while in Australian waters examined the animal life so abundant in that quarter of the world. He afterwards taught comparative anatomy as part of his duties when appointed professor at the British School of Mines, whence he wrote several textbooks and conducted lecture courses that added greatly to his fame. Perhaps he will always be best known, in a literary sense, by his classic *Evidence of Man's Place in Nature*, 1863.

John Kirke Townsend (1809–51) wrote a famous *Narrative of a Journey across the Rocky*

Mountains, &c., 4to, Phila., 1839, in an appendix to which is a list of the quadrupeds and birds found in the territory of the Oregon. There, also, notes on the fauna of the Sandwich Islands, Chile, &c., are catalogued. A London edition illustrated, in 2 volumes, was issued with a title somewhat different in 1840. Both works are rare and important. In 1849 appeared the first and only part (pp. 12, pl. 4, Phila.) of his *Ornithology of the United States*—very rare.

Physiology based on structure, or *anatomical physiology*, really had a beginning—albeit vague and cloudy—in the writings of the ancient zoologists, and we discern it in the works of Aristotle and Galen. The subject actually belongs in the domain of *medicine*, for the study of which the reader is referred to the *Bibliotheca Osleriana*. In this catalogue the student of comparative physiology will find at first hand the titles of all the essential literature on this important subject from the earliest to the latest times.

As the Compiler has several times remarked, the discovery of the clinical microscope and other modern methods of research made possible not only accurate descriptions of minute organisms but the scientific observation of cell-structure in animals; and be it again stated—Anton von Leeuwenhoek (1632–1723) and Marcello Malpighi (1628–94) were the first to make an extensive use of the microscope for these purposes.

While on the subject of *vertebrate morphology* one must not forget in this connection the works of Friedrich Joseph Schelver (1778–1832) who published several related treatises on insects and worms; of Gotthilf Heinrich von Schubert (1780–1860), a rather vague and speculative naturalist; Carl Friedrich Burdach (1776–1846) who wrote on the habits of animals; Carl Gustav Carus (1789–1869) whose *Lehrbuch der Vergleichenden Zootomie*, 1834, has passed through several editions and has been translated into English and French; the morphological studies of that versatile genius Goethe; and Carl Friedrich Kielmeyer (1765–1844), another comparative anatomist, to whom Humboldt dedicated his *Zoological Researches*.

Another morphologist of some note is Gotthelf Fischer (1771–1853), whose works had a wide range from fishes to geology and paleontology. About this time also appeared the papers of Dallinger on comparative morphology and, following him, F. Tiedemann (1781–1860) made many and varied contributions to the same study. L. H. Bojanus (1776–1827) must not be passed over, as adding embryology to his other comparative studies; nor should J. F. Meckel (2nd), member of an illustrious family of medico-naturalists, be forgotten, because of his devotion to the study and teaching of comparative anatomy. He worked under Cuvier and eventually became a famous professor in Halle, where he edited his well-known *Archiv*. C. Asmund Rudolphi (1771–1832), a teacher of Johannes Müller, was another comparative anatomist of note.

Biochemistry (with its attendant literature), an important department of zoology much studied in recent times, had its inception in the cell-theory and other works of Theodor Schwann (1810–81).

Bionomics, about which Charles Darwin was the first serious writer, had a forerunner in Count Georges L. L. de Buffon, whose extensive writings are largely devoted to the habits of animals and their relations to their immediate surroundings rather than to questions of structure alone. Of all the writers before and since Darwin's time Buffon stands pre-eminent as a student of what we now know as bionomics.

It was during this period that the vertebrate zoology of insular and continental India was studied by a large group of British naturalists who reported upon it in special journals, serials, and monographs. These well-known names all appear in the Catalogue, among them Horsfield and John McClelland.

About this time a French traveler, Charles Bélanger, published his *Voyage aux Indes-Orientales*, 1834, with a folio atlas, that deals in part with the zoology of Java, Mauritius,

and portions of India. We are indebted to Capt. Hugh Falconer (1808–65) for numerous brochures on the fossil fauna of the Far East (and other localities), especially his *Fauna Antiqua Sivalensis*, &c., and *Illustrations*, 1846–9, London, that treat extensively, with Sir P. T. Cautley, the paleontology of North India.

Another explorer of the Far East was Philipp Franz von Siebold (1796–1866), who is not to be confused with an equally distinguished naturalist, Carl Theodor Siebold (1804–85), or with his father Christof, professor in Würzburg. His chief work on the animals of Japan is entitled *Fauna Japonica*, &c., Lugd. Bat., 1833–50, a 6-vol. folio in which C. J. Temminck and H. Schlegel collaborated for descriptions of the vertebrata.

Madagascar has always been a favorite island for the voyaging faunist. One of the early nineteenth-century reports on its animal life is furnished by Julien F. Desjardins (1799–1840) who, among other contributions, wrote a *Rapport Annuel sur . . . l'histoire naturelle de l'Île Maurice*, 8vo, 1835–6. Shortly before, J. B. Bory de Saint-Vincent (1780–1846) visited the island and described the Mauritian and neighboring fauna in his *Voyage dans les quatre principales îles des mers d'Afrique*, 1803, 3 vols., 8vo.

Martin H. C. Lichtenstein (1780–1857), born in Hamburg, while serving as a doctor in the Dutch service spent most of three years in South Africa and contributed to our knowledge of its zoological life. He became better known as professor of zoology in Berlin, in charge of the University Museum. So far as concerns his work in South Africa it is largely dealt with in his *Reisen im südlichen Africa*, 2 parts, Berlin, 1811–12.

Reference has already been made to the life and writings of Sir Andrew Smith (1797–1872) to whom the world of natural science is greatly indebted for his faunal literature relating to South Africa. His chief monograph is *Illustrations of the Zoology of South Africa*, 5 vols., 1838–50.

Much later, with the same end in view, is W. L. Distant's *Naturalist in the Transvaal* (1892) in which the mammalia, aves, reptilia, and batrachia of South Africa are systematically described by competent specialists.

An expedition to the Congo, during which some attention was paid to the fauna of the regions visited, was made by James Kingston Tuckey (1776–1816). In his *Narrative of an Expedition to explore the River Zaire*, 4to, London, 13 pl., 1818, J. Cranch gives 'A general notice of the Animals'.

Hugh Clapperton (1788–1827) made several incursions into the wilds of Central Africa, accounts of which (with a description of the animals seen and secured) were given by him and his associates in two-volume works. With D. Denham he published, 1826, two editions, *Narrative of Travels . . . in northern and central Africa, 1822–4.*

Among the more important contributions to nineteenth-century literature of vertebrate zoology of Africa and neighboring regions are those of Wilhelm C. H. Peters (1815–83) the successor in Berlin of Lichtenstein. His *Naturwissenschaftliche Reise nach Mossambique*, &c., 4to, Berlin, 1852–82, in which the fauna is elaborately catalogued is, perhaps, his best work. In conjunction with Carl C. von der Decken (1833–65) he described the mammalia of that naturalist's well-known *Reisen in Ost-Afrika in 1859–61*, 4 vols. This fine work also includes a history of the fauna of the African coastal regions—Zanzibar, Mozambique, &c.

The faunal discoveries, many of new species, by Carlo Fornasini in Mozambique were examined and described by Giovanni G. Bianconi (1809–78) under the caption *Specimina Zoologica Mosambicana*, &c., Bonon., 1850–70.

After their return from the famous military-scientific expedition into Egypt, made under the first Napoleon and (as previously mentioned) described in the monumental *Description de l'Égypte, Histoire Naturelle*, 4 superfolio vols., a group of naturalists that included the zoologists E. Geoffroy Saint-Hilaire, M. J. C. L.

Savigny, Friedrich W. Hemprich (1796–1825), and Christian G. Ehrenberg (1795–1876) either continued and extended their studies of Egyptian animal life or turned their attention to the fauna of neighboring regions, especially the African. A second edition, much inferior to the first, was issued by the Bourbons. This was the origin of the well-known *Symbolae Physicae seu Icones* &c. *Pars zoologica*, Berol., 1828–45, that Ehrenberg and Hemprich (assisted by others) brought out in 4 vols., with numerous colored plates, in which the fauna of northern Africa, Arabia, Syria, &c. are fully described and depicted.

Another prominent zoologist who is widely known for his studies of African fauna was Wilhelm P. E. S. Rüppell (1794–1884), whose *Atlas zu der Reise im nördlichen Afrika*, folio, 1826–8, has the first part devoted to the zoology of the expedition. The author also published monographs on the birds and mammals of Abyssinia and other African countries; in fact he is among those numerous writers whose works must be studied by all serious students of African biology.

Another naturalist who traveled much in the countries bordering on the Mediterranean and recorded his discoveries and observations on the animal life of the East was Joseph von Russegger (1802–63). With the aid of J. J. Heckel and other systematists he published his *Reisen in Europa, Asien und Africa . . . in den Jahren 1835 bis 1841*, &c., 4 vols., Stuttgart, 1841–8. The natural history portion of this useful work has been reprinted under the editorial management of E. Fenzl and others.

Although he should rank among the most celebrated of ichthyologists in general P. Bleeker is best known for his magnificent treatise, the nine-volume folio *Atlas ichthyologique des Indes Orientales Néerlandaises*, 1862–72, a famous work published at Amsterdam, and illustrated by 420 folio colored plates.

Abyssinia was the chief objective of a scientific expedition under C. Théophile Lefèbvre (1811–60) reported upon under the title *Voyage en Abyssinie*. This work, in 9 volumes, Paris, was published in 1845–51, and illustrated with over 200 plates.

Among the better known faunists who wrote much about the animals of Africa was the naturalist Martin T. von Heuglin (1824–76). His travels and discoveries are described in several publications, at least two ornithological, and in numerous contributions to serials and periodicals. A number of these will be found—as is the case with quite a few of the foregoing titles—in this Catalogue. Here the Compiler will mention only this writer's *Ornithologie Nordost-Afrikas*, &c., Cassel, 1869–73, a classic work on this subject.

As a result of his travels in northern Africa, Moritz F. Wagner (1813–87) published *Reisen in der Regentschaft Algier, 1836–8*, 3 vols., Leipzig, with an Atlas, in which the fauna is, among other subjects, systematically described and figured. Subsequently the French government organized a scientific survey of the same territory and published *Exploration scientifique de l'Algérie pendant les années 1840–42*. This report was published in Paris, 1846–60, the birds and mammals being described by Levaillant, the fishes and reptiles by A. Guichenot.

Finally, and as a supplement to this all-too-brief account of the early explorers who wrote on African zoology, the reader is referred to W. L. Sclater's excellent article, 'Early Sources of our Knowledge of African Ornithology' (*Jour. für Ornithologie*, Bd. 2, 1929).

The Canary Islands and their faunal life to some extent depicted by Alexander Humboldt, were more fully described by P. B. Webb and S. Berthelot in their *Histoire naturelle des Îles Canaries*, 1835–44, in 3 vols., and an Atlas of 438 plates. This rather rare and extensive work was issued in 108 parts, the ornithology being detailed mostly by the principal editors (and M. A. Moquin-Tandon), the reptiles by M. P. Gervaise, and the ichthyology by M. A. Valenciennes. That indefatigable explorer and naturalist, Baron J. B. Bory de Saint-Vincent, has given us, also, an earlier report entitled *Essais . . . ou précis de l'histoire générale de l'archipel des Canaries*, Paris, 1803.

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The Madeira group has been fairly well explored and its fauna listed during the nineteenth century. One of the best histories is that of Richard T. Lowe (1802–74), who wrote *Primitiae Faunae . . . Maderae et Portus Sancti*, &c., Cambridge, 1831, also another edition with appendix in 1851, as well as a *History of the Fishes of Madeira*, 8vo, London, 1843–60, with 17 colored plates.

Several references have been made in this Introduction to the life and works of that celebrated Smithsonian, Robert Ridgway (1850–1929). Although his most enduring work is the monumental *Birds of North and Middle America*, 8 vols. (1901–27), unfinished at the time of his death, the Catalogue annexed to this Introduction credits him with a notable *Color Standard* (two editions) for zoological descriptions; *A Manual of North American Birds* (1st edition, 1887); the *Ornithology of Illinois*, 1887; as one of the editors with Brewer and Baird of their fine treatise (already mentioned), and of numerous other contributions to the various Smithsonian publications.

The avian literature of the Hawaiian Islands may here be noticed once more. It is in part represented by the well illustrated works of Lord Rothschild's *Avifauna of Laysan*, 1893–1900; the monographs of Evans and Wilson, *Aves Hawaiienses*, 1890–9; the small, popular handbook of H. Henshaw, *Birds of the Hawaiian Islands*, 1902, and a useful *Key to the Birds of the Hawaiian Group*, 1901, the work of W. A. Bryan.

The Spanish Mainland has been the subject of many treatises, the most popular of which is probably Waterton's *Wanderings*, that has been many times reprinted since the first edition of 1825. Next in order of importance is Richard Schomburgk's *Reisen in Britisch-Guiana* (1848) which has recently been translated from the Dutch and German editions by the Compiler's friend, Dr. Walter Roth, Curator of the British Guiana Museum in Georgetown, B.G. The original MS. of that translation is now in the E.S.W. Library.

Léotaud's *Oiseaux de l'île de la Trinidad* and Gosse's *Birds of Jamaica* (1847) are examples of early local works on the avifauna of the West Indian islands. The latter is a charming work. The Blacker Library is fortunate in possessing the original drawings from which Gosse's (subsequent) *Illustrations* (1849), a sort of atlas to the text, were produced—delightful, illustrative, colored drawings. The small folio of text has itself become exceedingly rare.

Charles Cory's name is indelibly associated with the faunal literature of the West Indies, beginning with his *Birds of the Bahama Islands* (1880) which had two printings, the last in 1890. The reader is referred to the Catalogue list for the complete roster of Dr. Cory's excellent monographs.

Cuba, Porto Rico, and Haiti also claim a large number of authors—Lembeye, Poey, and Gundlach among the early writers, Wetmore among the recent contributors.

Although Baron de la Hontan published a catalogue of the Canadian animals—birds in particular—in his *Voyages* (1793) and description, and while figures of British American fauna form part of several noted treatises on North American zoology, yet Canada has not received the special attention that the importance and variety of her faunal species demand.

The adjective *Canadensis* has been rather overworked in systematic biology for many a long year, and the Dominion has not been neglected by zoological writers as part of North America, but local treatises are few. However, Thos. Nuttall's (1786–1859) *Manual* in two volumes (1832–4) and one volume in 1840; McIlwraith's *Birds of Ontario* (1894); Taverner's *Birds of Eastern Canada* (1919); Ross's *Birds of Canada* (1871); Chamberlain's *Catalogue of Canadian Birds* (1887), may be mentioned at this juncture.

In addition to the various editions of his *Check List of North American Birds* (1st ed., 1882) and of the famous *Key to North American Birds* (1872 *ed. prin.*), Elliott Coues was responsible for many works that did not bear his name as part of their major titles, among them

Stearns' *New England Bird Life* in 2 volumes, 1881–3.

Another and still more popular treatise is *North American Birds* (1874–84) by that versatile and accomplished trinity, Baird, Brewer, and Ridgway. This work was followed in 1887 by a second edition, and in 1896 appeared a *Manual of North American Birds* by the last-named author.

In 1892 was published Major Bendire's classic and finely illustrated *Life Histories of North American Birds.*

The Compiler is well aware that there exist in the literature of the nineteenth and early twentieth centuries many well-known, finely illustrated and important treatises devoted to individual vertebrate orders, families, genera, and species. Perhaps the forty volumes of Jardine's encyclopedic *Natural History* furnish the best collection of this class. However, the present Introduction cannot, owing mainly to lack of space and to a desire to avoid needless repetition of titles, do more than mention a few of these monographs, some of which have already been quoted in this section. These titles with many others listed in the Student's Index and the Catalogue comprise such works as Sclater's *Curassows*; Bent's *Life Histories of North American Birds*; Eyton's *Anatidae*, 1838; Hervieux's *Canaries*, 1730; Knip's *Pigeons*, 1808; Beebe's *Pheasants*; Finsch's *Papageien*, 1867–8; Lear's *Parrots*, 1832; Gould's many monographs, e.g. his *Toucans*, 1834; Kirke Swann's *Accipitres*, 1923– ; Brehm's *Papageien*, 1842; Phillips' *Ducks*, 1922–30; Miller's *Bats*, 1907; Forbes' *Primates*, 1894; Blaauw's *Cranes*, 1897; Alferakī's *Geese*, 1905; D. G. Elliot's *Grouse*, 1864; H. Allen's *Bats of North America*, 1864; Elliot's *Felidae*, 1883; E. Blyth's *Cranes*, 1881; Dewhurst's *Cetacea*, 1834; Sclater and Smit's *Antelopes*, 1894–1900; Greene's *Parrots*, 1887; Eudes-Deslongchamps' *Trochilidés*, 1881; Thos. Beale's *Sperm Whale*, 1839; Seth-Smith's *Parrakeets*, 1902–3; Dresser's *Meropidae*, 1884; St. George Mivart's *Cat*, 1881; Widegren's *Sveriges Salmonider*, 1862; E. Coues *Mustelidae*, 1877; M. C. Engell's *Elefantens udbred. i Afrika*, 1899; Lord Tavistock's popular work on *Parrakeets*, 1929; Fayrer's *Snakes of India*, 1874; Gould's *Kangaroos*, 1841; Lydekker's *Cervidae*, 1898; Herbert Friedmann's *Cowbirds*, 1929; Jardine's *Felidae*, 1845; Jardine's *British Salmonidae* (1839); Russ's *Brieftaube*, 1877; Lydekker's *Ruminants*, 1898; Roosevelt's *Deer Family*, 1902; Beddard's *Whales*, 1900; Dugmore's *Newfoundland Caribou*, 1913. Finally, R. Lydekker's *Handbook to the Marsupialia and Monotremata*, 1894, and most of that versatile author's numerous other monographs will be found listed in the present Catalogue as good examples of original and valuable contributions to systematic zoology.

The articles on *paleontology* contributed by Sir Richard Owen to the eighth edition of the *Encyclopaedia Britannica*, though now out of date, are among the best of the earlier essays on the geologic relations of extinct animals. These essays were followed (1877) by *Researches on the Extinct Mammals of Australia* and (1879) and a *Memoir on the Extinct Wingless Birds of New Zealand and elsewhere*, illustrated by an atlas with 128 plates.

The paleontologic works of various members of the Woodward family should be familiar to the research student. These monographs are many of them listed and evaluated in the present Catalogue.

Among the dictionaries and cyclopedias of natural history listed in the appended Catalogue is the immense *Encyclopédie Méthodique* (1782–1832), 196 volumes, several of which are devoted to vertebrate zoology, most of it contributed by L. J. M. Daubenton, A. G. Desmarest, and the Abbé Bonnaterre.

An excellent combination of the systematic and popular appeared in the manuals of the naturalist P. H. Gosse, whose *Mammalia* (1848); *Birds* (1849); *Reptiles* (1850), and *Fishes* (1851) are well worth perusal.

CHAPTER XI

I. *SOME IMPORTANT TREATISES AND MONOGRAPHS ON ORNITHOLOGY AND MAMMALOGY PUBLISHED DURING THE NINETEENTH AND TWENTIETH CENTURIES.*

A few Forerunners of Modern Zoological Literature: **Merrett—Plot—Pennant—Berkenhout—Tunstall—Swainson—J. Fleming—L. Jenyns—Thos. Bell—John Church—Flower and Lydekker—Max Weber—W. K. Gregory—H. F. Osborn—W. F. Kirby—John Latham—Vieillot—R. Gray—*Local British Faunists*: Harvie-Brown and Buckley—Sterland—Muirhead—Tucker—Knox—Harting—J. Atkinson—A. G. Butler—Eagle Clarke—A. Lefèbvre—*Local Continental Zoologists*: Rzaczynski—Grossinger—J. L. Frisch—J. D. Peterson—J. B. Fischer—Beseke—Bechstein—J. A. Naumann—Borkhausen—Pilati—Cetti—Nozeman—Houttuyn—Linnaeus—Brunnich—Gunnerus. *France*: Chenu—A. G. Desmarest—Temminck—Brehm—Blasius—*Great Britain*: J. Walcott—Lord—Donovan—Bolton—Bewick—Gilbert White—G. R. Gray—*America*: Pennant—Barton—J. R. Forster—Bartram—Wm. Yarrell—J. G. Wood—J. Duncan.**

AS previously pointed out, the literature of Mammalogy is next to that of Ornithology the most extensive of the publications devoted to vertebrate zoology. The more important treatises, taken at random and covering some of the many subdivisions of the subject, are recorded here. Several of these titles are also referred to elsewhere in this Introduction, while the great majority of *all* independent mammalian titles will be found (partially annotated) in the appended Catalogue.

The chief contributions to Ichthyology, Herpetology, and Amphibian life are mentioned in the special chapters devoted to those subjects.

Every civilized country possesses a *local literature* on its zoological inhabitants, some of it extremely voluminous. Elsewhere the Compiler has listed a considerable number of these monographs, especially British and American, quite a few elaborately illustrated and describing minutely the animal life of limited areas. A brief account of a few of such local faunists is desirable in a work of this kind, more extended treatises being given greater prominence.

The government publications (reports, books, &c.) of Great Britain and Ireland issued by the various departments, offices, surveys, and numerous commissions of the Empire, now and then contain or are chiefly concerned, directly or indirectly, with vertebrate zoology. This is especially true of game and of fishes as food. The McGill libraries have a full complement of these works, and the Compiler refers the student also to the Cat. British Mus. (Nat. History) under the caption *Great Britain and Ireland* for a list of them. In the present Introduction only the most important can be noticed.

As a prelude to the mention of modern publications on Aves and Mammalia a few forerunners of nineteenth- and twentieth-century literature may first of all be noted.

Merrett's *Pinex* contains the earliest list (1666) of British birds, while Plot's *Natural History of Oxfordshire* (1677) was the first of a long line of local 'faunographs' hardly one of which fails to contribute something new to the zoology of the county or counties described.

Berkenhout published a *Natural History of Great Britain and Ireland* in 1769, after which, in time and interest, came Tunstall's (and

Fothergill's) *Ornithologia Britannica*, folio, 1771.

Thomas Pennant was born at Downing, Flintshire, June 14, 1726. In 1744 he went to Oxford but left without taking a degree. Between 1754 and 1774 he traveled extensively on the Continent and over the British Isles. From boyhood he had been greatly interested in natural history, was a friend and correspondent of Linnaeus, and wrote extensively on zoologic subjects. He died December 16, 1798.

The most celebrated of this writer's works, *British Zoology*, folio, 1766, was first published anonymously by the Cymmrodorion Society, followed in 1768–70 by a second and more complete 8vo edition in 4 volumes, illustrated by plates.

In 1771 there appeared at Chester the first edition of his *Synopsis of Quadrupeds* which, like the preceding treatise, had several subsequent and amended editions and was translated into German. Later, accounts of the natural history of his voyages to Scotland, Wales, and elsewhere, appeared in print, preceded by his well-known *Genera of Birds*, Edinburgh, 8vo, 1773; 2nd ed., London, 1781. Of considerable interest to Americans are the two editions of his *Arctic Zoology*, the first one appearing in London, 2 vols., 1784–5, and a supplementary volume in 1787. A good review of the life and works of this important naturalist is that of Sir W. Jardine—a *Memoir of Pennant* —in the former's *Humming Birds*, Pt. II, 1833.

A valuable systematic monograph is W. Swainson's *Treatise on the geography and classification of Animals*, 1835.

Another observer of lesser rank than Pennant was John Fleming, who, however, wrote a fairly good *Philosophy of Zoology*, in two vols., Edin., 1822, giving his favorite classification of animals, followed by *A History of British Animals*, &c., 1828, reprinted in 1842. In 1835 Leonard Jenyns (afterwards Blomefield) brought out a *Manual* (followed by a *Catalogue*) *of British Vertebrate Animals*. This writer is, however, better known for his contributions to the ichthyology of the 'Beagle' expedition. Edward Forbes (1815–54) although a specialist in mollusca contributed many important papers on biology in general, mostly in conjunction with other writers. A versatile author (editor of the *Zoological Journal*) was Thomas Bell (1792–1880). Among his numerous contributions to vertebrate literature of the British Isles is his *History of British Quadrupeds*, &c., 8vo, London, 1837, 2nd ed., 1874, and a *History of British Reptiles*, &c., London, 1839, 2nd ed., 1849.

Among the curios of early British mammalogic literature is John Church's *Cabinet of Quadrupeds*, 1794–1805, 2 folio vols., well illustrated with drawings by J. Ibbetson.

Although not a very recent publication, the *Introduction to the Study of Mammals*, 1891, by Flower and Lydekker, is of great value to the student; and the same may be said of *Die Säugethiere*, 1904, of Max Weber. Another instructive treatise is W. K. Gregory's *Orders of Mammals*, one of the *Bulletins*, vol. xxvii, 1910, issued by the American Mus. Nat. History, New York. Of the many works on vertebrate paleontology, H. F. Osborn's *Age of Mammals*, 1910, is to be recommended.

A brief but systematic study of the general subject is W. F. Kirby's *Mammals of the World*, London, 1907.

Reference has several times been made to John Latham (1740–1837). His *General Synopsis of Birds* and their supplements, 1781–1802; his *General History*, 1821–8, with several editions (English and German); and his systematic treatise, or *Index Ornithologicus* (1790), are well known to instructed ornithologists, and form an essential part of all good libraries.

Mention has been made in this Introduction to the valuable contributions to ornithology of L. J. P. Vieillot (1748–1831). Among these is an Americana of considerable importance, his *Histoire Naturelle des Oiseaux de l'Amérique septentrionale*, in 2 vols., Paris, 1807.

Probably no fauna of the palaearctic region has been so thoroughly described in monographic literature as the aves of Great Britain and Ireland. Newton (*Dictionary*, pp. 44–5)

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notices, for North Britain, Robert Gray's *Birds of the West of Scotland* (1871), and the series of district *Vertebrate Fauna*, begun by Harvie-Brown and T. E. Buckley, of which seven volumes have now appeared, treating of (1) Sutherland, Caithness, and West Cromarty; (2) Outer Hebrides; (3) Argyll and Inner Hebrides; (4) Iona and Mull (this by Graham); (5) Orkney, and (6 and 7) Moray, as well as Dee and Shetland; also Muirhead's *Birds of Berwickshire* (2 vols., 1889–96).

Another typical local history is Sterland's *Birds of Sherwood Forest*, 1869. Other local works on English birds are still more numerous, among them the oldest of all, Tucker's unfinished *Ornithologia Danmoniensis* (4to, 1809), an ambitious work of which not even the whole of the extensive Introduction was published. At intervals followed Dillwyn's *Fauna and Flora of Swansea* (1848); Knox's *Ornithological Rambles in Sussex* (1849), and Harting's *Birds of Middlesex* (1866).

A rather good compend of British ornithology was published by John Atkinson in 1820, based largely on the anatomy and physiology of birds.

Based chiefly on a study of British birds, W. Eagle Clark wrote a useful work (2 vols., 1912) on the subject of avian migration.

Another treatise, published 1896–8, is an extensive monograph on the öology and nidology of the British Isles—A. G. Butler's *British Birds with their Nests and Eggs*—in six volumes, of which the author collaborated with H. O. Forbes, W. B. Tegetmeier, and other well-known writers. Related to this work is A. Lefèbvre's *Atlas of the Eggs of the Birds of Europe*, 1844; also a French edition in 1848.

'Local faunists'—as Newton calls them—from the seventeenth century onwards present a difficulty for one who essays a brief history of zoological literature in all countries, since their name is legion, and it is possible to list by name only a few of them. In this place it may be mentioned that in 1721 Rzaczynski brought out his *Historia naturalis . . . Poloniae*; Grossinger, in 1793, his *Historia avium Hungariae*. In 1743–63 J. L. Frisch published the splendid *Vorstellung der Vögel Deutschlandes*, admirably illustrated by colored plates. Later, J. D. Peterson wrote his rare *Verzeichnis baltischer Vögel*, and in 1791 appeared J. B. Fischer's . . . *Naturgeschichte von Livland*, followed by Beseke's *Beytrag zur Naturgeschichte der Vögel Kurlands*. Still later were published Bechstein's well-known descriptions of German and other mid-European birds followed by—most complete of all—the voluminous and remarkably illustrated monograph of J. A. Naumann on Central European ornithology, with its many supplements and a recent fine, enlarged edition. Worthy of mention but overshadowed by the beauty and fullness of the Naumann productions are the local publications of Borkhausen (1800–41) and several others of minor importance.

During this period appeared also many treatises by other local naturalists, among them (for Italy) Pilati, Gilius, Bernini, and Cetti; (Holland) Nozeman and Houttuyn; (Scandinavia) Linnaeus' *Fauna Svecica*; Brunnich's *Ornithologia borealis*, and the writings of Gunnerus and Otto Fabricius, most of whose annotated titles will be found in the present Catalogue.

In France there appeared (1850–80) Chenu's valuable *Encyclopédie d'Histoire Naturelle* in the preparation of which Desmarest, des Murs, and other well-known writers participated.

Here also may be noted the work (8 vols. and 4 vols. atlas) of L. P. J. Vieillot's *Faune Française*, 1820–30, of which the birds were described by the author, mammals and reptiles by A. G. Desmarest, and the fishes by H. M. D. de Blainville.

An early and very useful work of reference dealing with European avifauna is Temminck's *Manuel d'Ornithologie*, published in 1815 and 1820.

Of the comparatively early works on the *Birds of Europe*, the treatise of John Gould (1832–7) was sumptuously illustrated by his usual profusion of finely executed hand-colored plates.

In 1831 Brehm issued his *Naturgeschichte der Vögel Deutschlands*, really a handbook of the birds of North and Middle Europe. However, the most complete treatise on Middle European bird-life is an enlarged edition, published in 1860 and edited by Blasius, of Naumann's original *Naturgeschichte der Vögel Deutschlands*, 1797–1803.

About 1789 appeared John Walcott's *Synopsis of British Birds*; Wm. Lewin's (superior) *Birds of Great Britain* in 7 volumes; Lord's (inferior) *System of Ornithology*; and Donovan's voluminous Histories of Animal Life in the British Isles, followed by Bolton's very popular *Harmonia Ruralis*.

Bewick's *Histories* are better known for their remarkable woodcut illustrations than for the scientific value of the text. Most of this last-named naturalist's titles will be found in the present Catalogue.

Thomas Bewick was born at Ovingham, Northumberland, in 1753, the son of a farmer. He early evinced a love of nature and of drawing. When fourteen years of age he was apprenticed to the Newcastle engraver Beilby, whose partner he subsequently became. From 1779 onwards he produced woodcuts as illustrations for many books, his figures and tail-pieces showing an immense advance over previous examples of wood engraving. He died in 1828, having acquired a reputation as the most effective, accurate, and spirited wood engraver of his day.

While these pretentious and in many instances truly valuable contributions to scientific zoology were being published in Great Britain a small volume by an obscure clergyman named Gilbert White appeared, with the title *The Natural History of Selborne*, from the little village in which he lived. It consists mostly of letters to scientific friends and, as Newton says, 'the graceful simplicity of its style, the elevating tone of its spirit, and the few errors of fact or opinion it contains' recommend it alike to all classes of readers. The first issue was in 1789, and since that date there have been published more editions and imitations of this fascinating book than of any other work on natural history in the wide world. There are few zoologists that have not fallen under the charming influence of its delightful pages. About forty of the chief printings, including the first, are listed in the present Catalogue.

In 1817 John Walcott issued his 3-volume *Exotic Animals*, comprising descriptions of the Linnaean classes of Fishes and Amphibia and illustrated by 60 plates.

In the meantime the faunal literature of North America was not neglected. Pennant's *Arctic Zoology*, Barton's *Fragments*, J. R. Forster's *Catalogue*, and Bartram's *Travels* furnish a fair and early account of animal life then known to exist in the northern latitudes of the New World.

As elsewhere mentioned, öology is not made a special study in this Introduction, but we must not fail to report favorably on Wolley's *Otheca Wolleyana*, issued in 1864 and 1902.

A voluminous as well as scientific and popular writer on British zoology is Wm. Yarrell (1784–1856). His chief treatises are a *History of British Fishes*; also *A History of British Birds*, 3 vols., ill., 8vo., London, 1837–43, that appeared in four editions, the last one in four volumes, revised and enlarged by Alfred Newton and H. Saunders. 1871–85. These two works form an important part of English zoological literature.

Popular forms of literature on vertebrate zoology have their uses, and although the Compiler does not intend to evaluate many of them a few will be mentioned. Among the writers of such books is the Rev. John G. Wood (1827–99), whose *Illustrated Natural History* (1851) and *Feathered Friends*, 1856, each in several editions, have been widely read.

A semi-popular work is John Duncan's *Birds of the British Isles*, 1898.

Another 'local faunist' is W. P. Turnbull, whose *Birds of East Pennsylvania and New Jersey* was privately printed and published (1869) at Glasgow. His other ornithological works (q.v.) were issued in America.

Another and valuable monograph on local avifauna is A. H. Howell's *Birds of Arkansas*, issued in 1911.

Still another local work is E. H. Eaton's *Birds of New York*, 2 vols., the first part of which appeared in 1910.

A very readable account of the natural history of Canada is given by W. R. King in his *Sportsman*, &c., 1866.

In 1906 A. P. Low reported an *Expedition to Hudson Bay and the Arctic Islands.*

Attention may here be drawn to the recent, revised and partly rewritten edition of Frank M. Chapman's excellent *Handbook of the Birds of Eastern North America*, 1927.

H. Kirke Swann contributed (1895) brief but interesting observations of the fauna of Nova Scotia in his *Nature in Acadie.*

Returning to the vertebrate-zoological literature of the Old World, a comprehensive study of the fauna of the Netherlands is H. Schlegel's *Natuurlijke historie van Nederland* (1860–78) in 6 volumes, illustrated by numerous colored plates, depicting and describing not only the mammalia but the birds, fishes, and reptiles.

Of considerable value to the advanced student is J. Herman Albarda's list of Holland birds in his *Aves Neerlandicae*, 1897.

An interesting, popular work on the *Flora and Fauna of Palestine* was published by H. C. Hart in 1891.

An account, largely ornithologic, was given of Asiatic fauna by Pallas (1811, St. Petersburg), in his *Zoographica Rosso-Asiatica.*

J. Gould and B. Sharpe published beautifully illustrated volumes (London, 1888) on the *Birds of Asia*, preceded (in 1831) by a *Century of Birds from the Himalayan Mountains*, written by the former zoologist.

Count Salvadori described many Oceanic and South Asian birds in his *Ornitologia della Papuasia*, 1880–91.

The birds of China were largely described by David and Oustalet under the title *Les Oiseaux de la Chine*, Paris, 1877.

Blakiston and Preyer presented their (now rare) work on the *Birds of Japan* in 1882.

In the name of sport Capt. J. H. Baldwin has written a good systematic account of many North Indian and Bengalese vertebrates, especially of the mammals.

In 1901 appeared Seebohm's *Birds of Asia*, in which he reports his practical experiences of the avifauna of that continent.

J. A. Murray's contributions to the literature of Indian zoology are well known, especially his *Vertebrate Zoology of Sind*, Bombay, 1884, and his *Avifauna of British India*, 1887.

Adding to his several contributions to the ornithology of India, Stuart Baker wrote in 1908 his *Indian Ducks* followed in 1913 by *Indian Pigeons and Doves*, London and Bombay.

A useful work, combining systematic treatment of the subject with a popular account, is T. C. Jerdon's *Mammals of India*, especially the second edition, 1874.

In 1913 appeared (London) Dewar's interesting and popular book, *Glimpses of Indian Birds.*

George Reid published in 1890 his *Birds of the Indian N.W. Provinces.*

Bucknil and Chasen's *Birds of the Islands of Singapore*, 31 col. pl., was published in 1927, and is a popular and useful systematic account of the avifauna.

The mammals of Malaysia have been well described by J. L. Bonhote in *Fasciculi Malayenses*, 1903.

H. Schlegel's *Birds of the Dutch East-Indies* (1863), a comprehensive history in three volumes, was published in both French and Dutch.

For Wichmann's classic *Nova Guinea*, 1906, E. D. van Oort wrote an account of the birds, other well-known naturalists treating the other vertebrates collected during the expedition.

One of the most acute of observers of the *Zoology of Java* was, as already mentioned, Thos. Horsfield, the titles of whose works on the subject are to be found in the appended Catalogue.

Of the early works dealing with the vertebrate zoology of Japan the best is P. F. Siebold's *Fauna Japonica*, 6 vols., 1833–50, com-

plete sets of which are quite rare. C. J. Temminck and others assisted in the preparation of this elaborate monograph.

H. Seebohm wrote an important and, at the time, much needed volume on the *Birds of the Japanese Empire* in 1890.

The literature of the *vertebrate zoology of Africa* and the neighboring islands is quite extensive.

In 1884 Milne-Edwards and others brought out at Paris a *Historie naturelle des Oiseaux de Madagascar*, both the birds and mammals of that island having been previously described (1875) by Edwards and Grandidier.

The vertebrate zoology of Sir Andrew Smith's *South Africa* (1849), 5 vols., is very important.

Starke and Sclater published (1900–6) the avian portion of the *Fauna of South Africa*, in four volumes, London—a comprehensive and scientific production.

Also a useful four-volume treatise, well illustrated and semi-popular, is F. W. Fitzsimons' *Natural History of South Africa*, 1919–20, in which the mammals are systematically described.

E. L. Layard's *Birds of South Africa* has deservedly reached several editions, that of 1875–84 having been revised by Bowdler Sharpe.

Captain Shelley's last contribution to the subject was published in 1896–1913, a complete and valuable work entitled *The Birds of Africa*.

An interesting monograph on the mummified fauna of ancient Egypt was issued by the Cairo Museum from the pens of Gaillard and Daressy, 1905.

In 1901 H. E. Harris published a series of photographs and essays on *Some Birds of the Canary Islands and South Africa*, illustrated by 56 plates and numerous cuts in the text.

J. I. S. Whitaker in 1905 wrote a useful, systematic work on the *Birds of Tunisia*.

In 1912 there appeared in London, *Game Birds and Water-Fowl of South Africa*, by Horsburgh.

L. S. Schultze's *Zoologische Ergebnisse* (1908–13) furnishes systematic descriptions of the vertebrates of West and Central South Africa.

A recent and most excellent systematic treatise (though poorly illustrated) on the birds of South Africa is the *Handbook* of G. L. Bates.

CHAPTER XII

II. *SOME IMPORTANT TREATISES AND MONOGRAPHS ON ORNITHOLOGY AND MAMMALOGY PUBLISHED DURING THE NINETEENTH AND TWENTIETH CENTURIES, CONTINUED.*

More British Local Faunists: **Jonathan Couch—Wm. Evans—Wm. Thompson—Cecil Smith—Hancock—Christy—Borrer—Willis Bund—Pidsley—H. A. Macpherson—Whitlock—Kirke Swann—Lord Lilford—H. E. Dresser—D. G. Elliot—Arrigoni degli Oddi—Temminck—Borowski—Wytsam—Schulze—P. L. Sclater—W. L. Sclater—Pechuel-Loesche—von Schreber—F. O. Morris—P. Westell—H. W. Wharton—Wm. Macgillivray—G. R. Waterhouse—S. G. Miller—C. J. Cornish—Bree—A. Lindermayer—Brodrick—H. Schlegel—Gadeau de Kerville—R. B. Sharpe—***Fauna of Africa***: G. E. Shelley—C. Whymper—Barboza du Bocage—C. J. Hartlaub—W. C. Harris—Finsch and Hartlaub—Anderson—Heughlin—Layard—A. Grandidier—W. H. Drummond—G. Révoil—Schilling—R. E. Drake-Brockman—C. V. A. Peel—*American Zoologists*: Alex. Wilson—Audubon—Elliott Coues—Chas. Chubb—Lord Brabourne—Prince Bonaparte—S. F. Baird—Joseph Henry—Crawshay—Taczanowski—Baron Tschudi—Azara—Mikan—A. Pelzeln—G. L. Bates—G. N. Lawrence—Marsh—Richard Harlan—J. H. Studer—C. J. Maynard—T. Jasper—A. E. Verrill—F. Kermode—W. A. Bryan—Jones Family—Geo. Ord—Kumlein—Turner—Belt—Schlater and Hudson—Chas. Cory—Warren—D. G. Elliot—C. H. Eigenmann—C. M. Scammon—A. Pope.**

ATTENTION has several times been directed to the extensive and, in many instances, overlapping histories of local British zoology. Of these, the works of the Couch family on the zoology of Cornwall is a good example. Jonathan Couch (1789–1870) wrote an interesting *Cornish Fauna*, Truro, 1838–44, in which R. Quiller Couch described the zoophytes. The same author extended his observations and, in 1862–5, published a very creditable *History of the Fishes of the British Islands*, 8vo, London. The Blacker Library has several Jonathan Couch manuscripts.

The mammalogy of Scotland, Edinburgh region, is systematically discussed by Wm. Evans in his *Mammalian Fauna*, 1892.

In this list of local treatises may be included William Thompson's (1805–52) *Report on the Fauna of Ireland*, 2 pts., 1841–4, followed by his *Natural History of Ireland*, in 4 vols., 1849–56, which, owing to the premature death of the writer, was completed by others. To these we add Stevenson's *Birds of Norfolk* (3 vols., 1866–90, completed by Southwell); Cecil Smith's *Birds of Somerset* (1869) and of *Guernsey* (1879); Cordeaux's *Birds of the Humber District* (1872); Hancock's *Birds of Northumberland and Durham* (1874); *The Birds of Nottinghamshire* by Sterland and Whitaker (1879); Rodd's *Birds of Cornwall*, edited by Harting (1880); the *Vertebrate Fauna of Yorkshire* (1881), in which the Birds are by W. E. Clarke; Churchill Babington's *Birds of Suffolk* (1884–6); A. C. Smith's *Birds of Wiltshire* (1887); *Birds of Essex* (1890) by Christy; of *Sussex* (1891) by Borrer, and of *Worcestershire* (1891) by Willis Bund. To the foregoing may be added the *Birds of Devonshire* (1891) by Pidsley, and (1892) by D'Urban and Mathew (Suppl. and ed. 2, 1895); *Lakeland* (1892) by H. A. Macpherson; *Lancashire* (ed. 2, 1893) by F. S. Mitchell; *London* (1893) by K. Swann;

Derbyshire (1893) by Whitlock, and finally of *Northamptonshire* (2 vols., 1895) by Lord Lilford.

Of course the *Victoria County Natural History*, recently published, constitutes by far the most complete account of the local flora and fauna of England.

Attention is again directed to H. E. Dresser's *Birds of Europe*, 1902–3, 8 vols., fine, colored plates, as well as to his *Eggs of the Birds of Europe*, 1905–10.

A cosmopolitan writer and versatile systematist, with whom every advanced student of zoology should become acquainted, is Daniel Giraud Elliot, many times quoted in these pages. At this time reference is made especially to his well-known *List of Land and Sea Mammals of North America*, 1901, published by the (Chicago) Field Museum of Natural History, followed by similar monographs on the same fauna in Middle America and the West Indies, 1904. His fine quarto *Review of the Primates*, in 3 ill. vols., was published by the (N.Y.) American Museum of Natural History, 1912–13. Practically all Elliot's works are shelved in the Blacker Library of McGill University.

The Compiler wishes again to draw the attention of the student of vertebrate zoology to the great scientific and educational value of the many *Guides* to the immense collections in the British Museum of Natural History, most of which are listed in the appended Catalogue.

A very good atlas, with excellent descriptive letterpress, of the birds of Europe, has been published in Italian by E. Arrigoni degli Oddi, 1902.

Among well-known European zoologists stands the Hollander, Conraad Jacob Temminck, several times mentioned in this Introduction, who not only wrote many treatises on ornithology but published (alone and with others) several works on mammalogy and vertebrates in general. He issued in 1827–41 his important *Monographies de Mammalogie*, in two volumes, based on an examination of the collections in various European Museums.

Half a century earlier G. H. Borowski wrote and published his *Gemeinnützige Naturgeschichte des Thierreichs*, &c., in five volumes, with colored illustrations, dealing mostly with vertebrates.

An excellent example of specific and generic catalogues is the one recently issued by P. A. G. Wytsam. In this *Genera Avium* (1905 to date) each family is treated by a different writer, who is specially fitted to describe it.

A comprehensive work on general zoology, *Das Tierreich*, was begun in 1896, in the editorial charge of F. E. Schulze, and published in Berlin by the *Deutsche Zoologische Gesellschaft*.

Reference has several times been made to that talented and versatile zoologist, Philip Lutley Sclater (1829–1907), whose contributions to zoologic literature are fully represented in the appended Catalogue. He wrote many monographs, especially on bird families, orders, and species and (mostly in conjunction with others) numerous systematic treatises of great importance. Of his best known works one remembers the *Birds of the Challenger Voyage*, 1880; *Catalogue* of the *Birds in the British Museum*, 1886–91; (with W. H. Hudson) *Argentine Ornithology*, 1888–9, and (with O. Salvin) *Exotic Ornithology*, showing 100 colored plates of American birds. A bibliography of the elder Sclater's writings was published as *Bulletin 49* of the United States National Museum, 1896.

Following in his famous father's footsteps, William Lutley Sclater (1863–), formerly Director of the South African Museum, published as Editor his first large work, the important *Fauna of South Africa*, 1900–6. This treatise was shortly followed by others of equal value to vertebrate zoologists, e.g. *A History of the Birds of Colorado*, 1912, and the *Geography of Mammals* (in conjunction with P. L. Sclater), 1899; all of which are listed in the accompanying Catalogue.

Of recent treatises on vertebrate zoology there is an abundant supply in all the European languages, one of the best being Pechuel-Loesche's (third) edition (1890–3) of A. E. Brehm's *Illustrirtes Thierleben* in ten illustrated

/ Griechenlands

volumes, a work to which attention has already been directed.

An excellent publication of a somewhat earlier period is the abundantly pictured J. C. D. von Schreber's quarto, *Die Säugethiere in Abbildungen . . . mit Beschreibungen* (1815–55) with over 300 colored plates and corresponding letterpress.

Of nineteenth-century writers on British fauna one of the most popular was Francis O. Morris (1810–93). His octavo *History of British Birds* in six volumes (1851–7) was several times reprinted, as was also his *Natural History of the Nests and Eggs of British Birds*, 3 vols., 1853–6.

A popular little work by W. P. Westell on *British Mammals* appeared in (?) 1927 as one of the Abbey Nature Books.

H. T. Wharton (1846–95) drew up a *List of British Birds* (1877), the genera arranged after Sundevall's method, the nomenclature revised by himself.

Several of Jas. E. Harting's numerous contributions to the literature of ornithology have been mentioned. Perhaps his *Handbook of British Birds*, second edition, 1901, was his best, and one should remember his essays on mammalian life, especially his *Extinct British Animals*, 1880. He is also our best modern authority on falconry and has written many books regarding one form of the chase (modern and medieval), that elegant and aristocratic 'sport' of torturing and killing birds by means of birds.

Attention is again drawn to William Macgillivray's labors and writings lest one forgets that while he was a great ornithologist his investigations included the domains of geology, botany, and mammalogy as well. In addition to his classic treatises on *British Birds* (1837–52) and his contributions to the (1831–9) Audubon series (q.v.) he wrote *British Quadrupeds* (1845–6) for the Naturalists' Library.

A little-known treatise is a rather good *Natural History of the Mammalia*, in two illustrated volumes, by G. R. Waterhouse, 1846–8.

Of the many collections of chapters on zoology by different authors, brought together for the information of the lay reader, one may here mention C. J. Cornish's excellent *Living Animals of the World* (1901), of which several editions and translations have appeared.

In 1871 Fritsch wrote and published in Berlin *Die Vögel der paläarktischen Fauna.*

In 1875–6 there also appeared Bree's *History of the Birds of Europe*, London.

Another excellent and recent account of European birds is Hartert's (1903–14) *Die Vögel der Paläarktischen Fauna*, Berlin.

Not many writers have touched the fauna of modern Greece. An exception is Ant. Lindermayer, who wrote in 1860 his *Vögel Griechenlands.*

Highly spoken of is Seebohm's (1883–5) *History of British Birds and their Eggs.*

Of the several modern works on British falconry one may mention at this time Wm. Brodrick's *Falconers' Favourites*, folio, 1865, and, in conjunction with F. H. Salvin, *Falconry in the British Islands*, 2nd ed., 1873.

A second edition of that valuable work, H. Schlegel's *De Vogels van Nederland*, 2 vols., was published in 1878, the first having appeared in 1854–8 as part of a work on Dutch fauna.

A quite complete account of the fauna of (old) Hungary is listed in the appended Catalogue under *Budapest. Fauna Regni Hungariae*, 1900.

In 1888–97 Gadeau de Kerville wrote, in four fascicles, his excellent *Faune de la Normandie.*

The name of that celebrated British naturalist, Richard Bowdler Sharpe (1847–1909), occurs frequently in these pages. His first independent work was a *Monograph of the Alcedinidae: or family of Kingfishers*, 1868–71, with 126 beautifully colored plates by Keulemans. For nearly half a century he occupied a foremost position in the zoological world, publishing chiefly works on ornithology, many of them in conjunction with other writers. His principal treatises are in the McGill libraries and listed in the appended Catalogue.

The *vertebrate zoology of Africa* has been the

subject of many interesting publications, as previously stated in a former chapter of this Introduction.

Among works generally regarded as standard reference treatises are G. E. Shelley's *Handbook to the Birds of Egypt* (1872) and his larger *Birds of Africa*, completed and edited by W. L. Sclater, 1896–1912.

Chas. Whymper also wrote on *Egyptian Birds* (1909), mostly those seen in the Nile Valley.

Barboza du Bocage has furnished an excellent account (1857–82) of the vertebrate zoology of Angola and other Portuguese possessions in Central and West Africa.

One of the excellent (rather early) works on African birds is C. J. G. Hartlaub's *System der Ornithologie West-Afrikas*, Bremen, 1857. Elsewhere allusion was made to this author's study of Madagascar fauna and other essays on African bird life, all listed in the Catalogue herewith. A still earlier work (1840) on *Game and Wild Animals of Southern Africa*, with 40 colored plates, was issued by W. C. Harris.

In 1870 (Leipzig) appeared Finsch and Hartlaub's *Vögel Ostafrikas*, a companion to the latter's 1857 treatise on West African avifauna.

Anderson published (London, 1872) his *Notes on the Birds of Damaraland.*

During 1875 there appeared at Cassel Heughlin's *Ornithologie Nordostafrikas.*

An unusually good treatise, the second edition of which appeared in 1884, was Layard's *Birds of South Africa*, a textbook of great value to the systematic student.

A noteworthy cyclopedia, the *Histoire physique de Madagascar* of A. Grandidier, 1875–1920, in more than 40 vols., is still unfinished. The whole range of zoology is fully treated in this monumental work.

In 1875 W. H. Drummond wrote a very readable *Large Game and Natural history of South and South-east Africa* and, 1888, an interesting record of the natural history explorations of this traveller appeared that he entitled *Tropical Africa.*

The fauna of Somaliland are described in George Rævoil's *Faune et Flore des Pays Çomalis*, 1882.

The fauna of Equatorial East Africa is partly described in Schillings' *Mit Blitzlicht und Büchse*, 1905.

Later (1910) R. E. Drake-Brockman wrote his well-known *Mammals of Somaliland.*

Of great interest for zoologists is C. V. A. Peel's *Somaliland* (1900) which gives a good account of the fauna (including the reptiles) of East Central Africa.

Among the 'local faunists' that have written about *South America* is Charles Chubb (1851–1926) who with Lord Brabourne began what (owing to the untimely death of both authors) was unfortunately never finished, a complete account of the avian life of that continent. All that appeared is the *Birds of British Guiana*, 1916.

In 1907, R. Crawshay wrote his *Birds of Tierra del Fuego*, describing most of the species found on the islands and mainland in the region of the Straits of Magellan.

In 1884–6 Taczanowski (1819–99) published at Rennes, France, his *Ornithologie du Pérou*, a valuable treatise in four volumes.

In his *Fauna Peruana*, 1844–6, Baron Tschudi described the birds (with J. Cabanis), fishes, and reptiles.

A good description of many South American birds is to be found in Azara's (1805) *Histor. nat. de los páxaros del Paraguay*, Madrid.

In 1820 Mikan issued in four parts, with 24 colored plates, his classic *Delectus Florae et Faunae Brasiliensis.* A much later work on the birds of Brazil is that of A. Pelzeln, published in 1871.

For a study of Brazilian mammals, see *Brazil. Commissão de Linhas Telegraphicas*, 1914–16.

A classic travelogue that passed through several editions and translations is Bates' *Naturalist on the River Amazons* (1863, London). In it bird-life plays a prominent part.

The birds of South-Western Mexico were described by G. N. Lawrence, a report based

on the collection made in 1875 for the United States National Museum by F. E. Sumichrest (1828–82).

One cannot mention too often that remarkable series, *Biologia Centrali-Americana*, in which (1880) P. L. Sclater described the avifauna.

In 1880 Marsh brought out his well-known *Odontornithes: Extinct Toothless Birds of North America*, a monograph that should be studied by every student of zoology.

Alexander Wilson (1766–1813), the 'Father of American Ornithology', was born in Scotland, the son of a Paisley weaver. He became a pedlar and while tramping about Scotland composed a number of dialect poems that enjoyed a wide popularity, some of them highly praised by the poet Burns. Mixing with politics and being unable to pay a fine inflicted because of certain literary indiscretions he was imprisoned for a time. Smarting under a sense of injustice he emigrated to America.

While employed as a village schoolmaster he made drawings of birds which William Bartram, the naturalist, encouraged him to continue and finally to publish. In 1806 he was appointed one of the editors of *Ree's Encyclopaedia* and thus acquired the leisure and means to bring out his great work, the seven-volume *American Ornithology*. After the appearance of the first volume of this famous treatise he spent the following winter, as he said, 'in search of birds and subscribers'. In 1876 a statue was erected to Wilson in his native town. He died in Philadelphia at the early age of forty-seven.

Practically all the monographs of this fundamental writer (including the rare variants of title) are in the E.S.W. and Blacker libraries.

Although Joseph Henry (1797–1878) did not contribute much to the systematic literature of vertebrate zoology he, as the first Secretary of the Smithsonian Institution and a man of varied scientific attainments, did much to encourage the study of zoology. Born in Albany, N.Y., of Scottish ancestry, he first attended a country district school and afterwards an Albany academy, to which he was in 1826 attached as teacher. In 1832 he was appointed professor of natural philosophy at Princeton and in 1846 resigned to accept charge of the Smithsonian. By general consent he was the foremost of American physicists.

Prince Lucien Jules Laurent Bonaparte (1803–57), son of Lucien and nephew of the Emperor Napoleon Bonaparte, was a scientist and rarely acted the part of a royal politician. He married in 1822 his cousin Zénaïde Bonaparte, daughter of King Joseph, and at the age of 22 began the publication in Philadelphia of his *American Ornithology*, a natural history of birds inhabiting the United States, not given by Wilson. Subsequently he published, generally in the U.S.A., numerous papers and treatises on various aspects of natural history as he observed them both in America and Europe, most of which have been collected for the McGill libraries. Despite the handicaps of his royal descent and surroundings, he was a devoted and efficient student of nature fit to rank with the best systematic writers on zoology.

Jean Louis Rodolphe Agassiz was born at Motier, Fribourg, Switzerland, May 28, 1807, and studied at Lausanne, Zurich, Heidelberg, and Munich. He graduated in medicine in 1830 and early began his uninterrupted and successful career as a naturalist, having in 1829 written an essay on the *Fishes of Brazil* that was warmly praised by Cuvier. This work was followed by others on ichthyology and by published observations on glacial action. He traveled extensively in Europe and in the United States, lecturing mostly on zoologic topics in various cities of the Old and New Worlds. In 1848 he was elected professor of natural history at Harvard and henceforth occupied several positions of honor and trust in the United States, declining offers of chairs in European universities. He finally gave all his collections to found a Museum of Comparative Zoology at Harvard—that flourishing activity further developed by his son, Alexander Agassiz (1835–1910). A life of unusual

scientific devotion came to an end at Cambridge, Mass., December 14, 1873.

The titles by J. L. R. Agassiz that relate to vertebrate zoology will be found in the appended Catalogue.

Spencer Fullerton Baird (1823–87), foremost American naturalist of his time, was born in Reading, Pa., and graduated from Dickinson College in 1840. It was a meeting with Audubon that turned the young man's attention to ornithology. In pursuit of this study he made long journeys through the country. Later he studied medicine and in 1845 became a professor in Dickinson College, lecturing on various natural science branches. He made large collections of faunal material which became eventually the nucleus of the immense resources of the Smithsonian Institution, of which he became Assistant Secretary in 1850.

His chief scientific labors are on record in the publications of that body, the Reports alone being enough to satisfy the ambition of any man. Coues thinks his treatise on Birds 'marked an epoch in the history of American ornithology'.

In 1878 Baird succeeded Joseph Henry as Secretary of the Smithsonian and in 1877 he died at the age of sixty-four, with complete recognition of his valuable labors for his country and full of honors conferred on him by almost every civilized Government. In addition to his publications on ornithology, Baird wrote a notable *Mammals of North America*, 1859, as well as many treatises on reptiles. All these are recorded in the appended Catalogue.

Among the early works on North American mammals is the treatise of the versatile Dr. Richard Harlan (1796–1843), *Fauna Americana*, pp. 318, 4to, published in Philadelphia, 1825. His composite work on medicine, zoology and comparative anatomy appeared in 1835. A presentation copy of this work from the author is in a McGill library.

Revised *Check Lists of North American Birds* are published by authority of the American Ornithologists' Union every few years. Files of these should be found in every good library on zoology.

In 1878 appeared J. H. Studer's *Birds of North America*, with 119 hand-colored plates by T. Jasper.

Of local faunists Chas. J. Maynard (1845–1929) contributed much to American literature. His *Birds of eastern North America*, 1872–81, and his *Contributions to Science*, 2 vols., 1884–94, form part of these papers.

Elliott Coues, one of the most brilliant and versatile of American naturalists, was born at Portsmouth, N.H., on September 9th, 1842. When eleven years of age he removed to Washington, D.C., where he attended Gonzaga College. Then he became a student at Columbia University, graduating B.A. in 1861 and entering the medical school the following year. After graduation as an M.D. he entered the U.S. Army and for seventeen years remained in the Service, resigning in 1881 (as Captain) to devote himself entirely to scientific pursuits. During his army life he was stationed at various posts (especially in the far West) at all of which he worked continuously at his favorite subjects. He was fortunate in having as mentor Professor Baird, under whose guidance he wrote several monographs. On his return to Washington he contributed largely (among many other tasks) to the *Century Dictionary* and devoted many years to the famous *Bibliography of Ornithology* which, unfortunately, he was not able to complete.

Among the numerous publications undertaken by Dr. Coues was a series of historical scientific treatises, the first of which appeared in 1893 and dealt with the *Expedition of Lewis and Clarke*. Coues died at the early age of fifty-seven and the world of science lost one of the most trenchant, analytical, painstaking and ready writers America has ever seen. Practically all his many works are to be found in the McGill libraries, and listed in the appended Catalogue.

A very good account of their natural history

is contained in A. E. Verrill's *Bermuda Islands*, 1902.

Among the publications of the Provincial Museum of Victoria, British Columbia, is a useful *Catalogue of British Columbia Birds*, by F. Kermode, 1904.

At this place may be mentioned W. A. Bryan's useful *Key to the Birds of the Hawaiian Group*, 1901.

On several occasions the Compiler has commented on the mass of literature on local fauna contributed by American writers, especially monographs on vertebrate life in various States of the Union. Several early Massachusetts reports on the flora and fauna of that state were published officially by various commissions from Geological, Zoological, and Botanical Surveys in 1835, 1838, and 1839, respectively. All these reports are listed in this Catalogue under *Massachusetts, State of.*

An outstanding and very rare monograph, depicting and describing local fauna, is *Nests and Eggs of Ohio Birds*, by the Jones family, 1879–86, an excellent hand-colored atlas (68 plates) of which very few copies were issued. The illustrations are superb, accurate pictures, drawn from nature. An early copy is in the Blacker Library.

The first systematic treatise on North American zoology by an American, including an account of new species collected by the Lewis and Clark Expedition, is George Ord's (1781–1866) extremely rare *North American Zoology*, 1815, a reprint of which was published by S. N. Rhoads in 1894.

In 1879 T. L. T. Kumlien published his *Contributions to the Natural History of Arctic America*, in which L. Kumlien described the Birds and Mammals, while T. H. Bean wrote about the Fishes.

In 1886 appeared Turner's *Natural History of Alaska* largely devoted to bird life in the far north of the American continent.

During 1888 Belt published his interesting *A Naturalist in Nicaragua*, an account of one of the numerous natural history expeditions made during the nineteenth and twentieth centuries to Middle and South America.

In 1889 Sclater and Hudson published in London their charming *Argentine Ornithology*, an amended edition of which was published in 1920 (2 vols.) by Hudson alone, with the title *Birds of La Plata.*

In 1890 Warren published at Harrisburg his *Birds of Pennsylvania*, one of many American contributions to local ornithology.

In its Zoological Series the Field Museum of Natural History issued a very useful *Catalogue of Mammals* by D. G. Elliot, Chicago, 1907, not only of North American but of many exotic species.

Here may be mentioned a special treatise by Carl H. Eigenmann, an outstanding work on *Cave Vertebrates of America*, 4to, published by the Carnegie Institute of Pittsburgh in 1909.

The *Marine Mammals of the N.W. Coast of North America* are described by C. M. Scammon (and W. H. Dall) in a well-illustrated essay of 319 pages, quarto, published in 1874.

W. T. Grenfell's *Labrador*, 1909, furnishes a good account of the vertebrate fauna of that desolate coast.

Charles Cory's studies of West Indian Birds, not to forget his monograph on the birds of eastern North America (1899), should be borne in mind, all of them to be found in the present Catalogue.

The latest West Indian account of island zoology is the *Survey of Porto Rico and the Virgin Islands*, 1927–30, of which 31 parts have appeared—a comprehensive and most valuable serial.

Of the many smaller works on American ornithological specialties a well-illustrated monograph is A. Pope's *Upland Game Birds of the United States* (1878), with 20 colored plates.

CHAPTER XIII

III. *SOME IMPORTANT TREATISES AND MONOGRAPHS ON ORNITHOLOGY AND MAMMALOGY PUBLISHED DURING THE NINETEENTH AND TWENTIETH CENTURIES, CONCLUDED.*

Australasian zoology: John Gould—E. P. Ramsay—Walter Buller—Campbell—Gregory Mathews—F. McCoy—W. H. D. Le Souëf—_Oceania_: Hartlaub and Finsch—A. R. Wallace—J. S. Gardiner—Gould and Sharpe—W. R. O. Grant—Salvadori—Wilson and Evans—Worcester and McGregor—_Scandinavia_: Conrad Quensel—Sven Nilsson—Linnaeus—A. J. Retzius—G. O. Sars—H. J. Wheelwright—Gaimard and Quoy—Niel Horrebor—J. E. C. Walter—M. von Wright—J. C. Schiödte—Faber—H. C. Müller—Collin—Kjaerbølling—Sundevall—Holmgren—Einar Lönnberg—Jägerskiöld and Kolthoff—E. L. Schiøler—I. Hartling—Collett—_Zoology of Germany_: Reichenbach—The Naumanns—J. Sturm—B. Borggreve—Gätke—Leverkühn—von der Mühle—Reichenow—Zander—_Switzerland_: Stölker—Fatio and Studer—H. R. Schinz—P. Blanchard—Irby—_Italy_: Count Salvadori—Savi—Giglioli—M. Craveri—E. G. Dehaut—L. Benoit—G. Motorelli—Arrigoni degli Oddi—G. Madarasz—Bory de Saint-Vincent—S. A. Renier—Canon Tristram—_India_: Hume and Marshall—R. A. Sterndale—Chas. Hose—Kelaart—Legge—G. M. Henry—Blanford and Oates—Huber—_American literature_: Godman and Salvin—Richardson and Swainson—_Zoological anatomy_: Nitzsch and Burmeister—J. Rennie—Fürbringer—Perrier—M. G. Retzius—Casey Wood—_Australia_: John Gould—J. L. G. Krefft—_Popular ornithology_: Sharpe—Frank Chapman—Knowlton and Ridgway—Stejneger—R. Lydekker—Evans—Pycraft—Beddard—A. Newton—Stone and Cram—Bertha Sturgis—McGregor—H. W. Henshaw—Guthrie-Smith—_French zoology_: Vieillot—P. Gervais—A. Risso—Benoist—Degland—Lesauvage—Teslé—René Paquet—Roux—Lapommeraye—Crespon—_Belgium and Holland_: Selys-Longchamps—P. J. van Beneden—A. Dubois—H. Schlegel—Büttikofer—Albarda—Blaauw—_Russia_: A. Humboldt—Eichwald—von Schrenck—von Hofmann—Middendorff—Radde—_United States and Canada_: T. H. Streets—S. B. Wilson—Anthony—Le Moine—C. E. Dionne—E. D. Wintle—F. E. Beddard—F. C. R. Jourdain—E. G. Boulenger—_Economic ornithology_: E. R. Kalmbach—Junius Henderson—W. E. Collinge—H. K. Job—_Bird Banding_: Audubon—Alex. Wetmore—Julian Huxley.

OF the many beautifully illustrated volumes devoted to *Australasian zoology* John Gould's quarto volumes on the *Birds of Australia*, London, 1837–8 and 1848–69, still hold the palm. As a textual companion to this treatise the author published, London, 1865, a *Handbook to the Birds of Australia*.

In 1878 E. P. Ramsay issued in Sydney his *Tabular List of Australian Birds*, with a more complete edition in 1888.

Comprehensive accounts of the vertebrates of New Zealand have been written (1904) by F. W. Hutton, both alone and in collaboration with J. Drummond.

In practical value and up-to-date arrangement the remarkable 12 volumes of Gregory

Mathews, *The Birds of Australia*, London, 1911–28, stand pre-eminent.

A good account of local Australian fauna (including vertebrates) is to be found in F. McCoy's serial *Natural History of Victoria*, 1878–90. Another is a history of the vertebrata of New South Wales given in the *Handbook* of the meeting at Sydney (1914) of the British Association for the Advancement of Science.

Two very interesting volumes on the *Wild Life of Australia* appeared in 1907–9 from the pen of W. H. D. Le Souëf (q.v.).

Regarding the *zoology of Oceania*, in 1867 Hartlaub and Finsch contributed their *Beitrag zur Fauna Centralpolynesiens*, with an account of the birds.

In 1869 there appeared in New York Alfred R. Wallace's famous *Malay Archipelago*, mostly devoted to Oceanic birds.

John S. Gardiner wrote (and edited) his noted *Fauna and Geography of the Maldive and Laccadive Archipelagoes*, 1902–3.

The year 1881 saw the publication of another of John Gould's famous works—completed after his death by Bowdler Sharpe—the *Birds of New Guinea*.

The *fauna of Australasia* and other countries of *Oceania* has also been fairly well described in the various voyages herein listed, among them the expeditions of Hakluyt, Dampier, La Pérouse, and Captain Cook, not to forget the monographs of Latham and many others. There must also be mentioned Shaw's *Zoology of New Holland* (1794), the latter appearing in a second edition entitled *A Natural History of the Birds of New South Wales* (1808), with additional plates. There was also a third, posthumous, printing in 1822.

Reference has elsewhere been made to Surgeon-General John White (fl. 1788–96) who wrote an interesting *Journal of a Voyage to New South Wales*, 1790, in which he gives an account of the faunal and floral life of that country. The mammalia are systematically described by J. Hunter, the other animals by G. Shaw. This work was translated into French with notes by C. J. Pougens, Paris, 1795–8. A German transcription of the same material, 8vo, 1793, was also published as part of F. A. A. Meyer's *Uebersicht der neuesten zoologischen Entdeckungen in Neuholland*, &c.

In 1866 Diggles began to issue (in parts) his *Ornithology of Australia* which (though never completed) continued until 1877, when it was published as two volumes in Brisbane.

In 1883 A. J. Campbell's *Nests and Eggs of Australian Birds* appeared—a most useful manual. In recent years Leach's *Australian Bird Book* (first printing 1923), a valuable handbook, has been very popular.

The *islands of Oceania* have a considerable literature all their own, only a fraction of which can be mentioned at this time and in this place. Two are Wigglesworth's *List of Polynesian Birds*, Dresden, 1891; T. Salvadori's *Ornithologia della Papuasia e delle Moluche* (and an *Aggiunte*) 1880–91.

In addition to the Polynesian avifauna described in the voyage of the 'Challenger' several informing works appeared since the earlier contributions, the last of which were Gregory Mathews' *Birds of Norfolk Island* (1928), and Casey Wood and Alex. Wetmore's *Birds of Fiji*, 1925–6.

Among the works dealing with the avifauna of Australasia is Sir Walter Buller's *Birds of New Zealand* in two editions, 1872–3 and 1888, finely illustrated with drawings by Keulemans. In 1882 Buller brought out a useful *Manual* based on the first edition of his Birds. Many of the original drawings made by Keulemans for these treatises are in the Blacker Library.

G. R. Gray also contributed studies of New Zealand birds, in his Appendix to Diffenbach's *Travels in New Zealand* (1843) and in the *Zoology of the 'Erebus' and 'Terror'* (1844–76).

Of special systematic value is F. W. Hutton's *Catalogue of the Birds of New Zealand*, 1871.

A recent (1930) and well executed work, with an excellent combination of popular and systematic attractions, is W. R. B. Oliver's *Birds of New Zealand*.

As mentioned, a well-known contributor to

the vertebrate zoology of Australia is George Shaw (1751–1813) the author of the *Speculum Linnaeanum: or Linnaean Zoology* (4to, 1790).

Still another comparatively early and well-known naturalist-traveler was Philip Parker King (1793–1856) who wrote several works on the natural history of the Australian continent. He was the editor of a two-volume *Survey of . . . the Western Coasts of Australia between 1818–22*, 8vo, London, 1827, in which the vertebrate fauna were described by J. E. Gray. Here must be mentioned, also, the wide wanderings of George Bennett who, among other books, wrote the attractive *Gatherings of a Naturalist in Australasia*, &c., 8vo, London, 1860.

A description of the birds of Malaysia is given by W. R. O. Grant in Annandale and Robinson's *Fasciculi Malayenses*, 1903.

Wilson and Evans brought out (in 1884) their pioneer treatise on the *Birds of the Sandwich Islands*, followed (1893–1900) by the beautifully illustrated *Avifauna of Laysan*, including an up-to-date systematic description of some birds of Hawaii, by Lord Rothschild.

Worcester and McGregor published their valuable *Hand-List of the Birds of the Philippine Islands* in 1906.

Much of the literature describing the fauna —especially the birds—of the Philippines will also be found in certain periodical publications, e.g. the *Philippine Journal of Science* (edited by McGregor); in the *Journal f. Ornithologie*; *Ibis*; *Proc. Zool. Soc., et al.*

As previously mentioned, *Scandinavia* is well represented in faunal literature, native and foreign. An early writer, Conrad Quensel (1767–1806), although mostly a botanist, wrote (in conjunction with others) *Svensk Zoologi*, 1806, while Sven Nilsson, under the caption *Skandinavisk Fauna*, wrote, between 1820 and 1855, and published in Lund, a series of monographs pretty well covering the whole range of Scandinavian vertebrates.

The Swedish flora and fauna catalogued by Linnaeus were fully described by that voluminous writer Anders Jahan Retzius (1742–1821) in numerous essays on the subject. In the production of these tractates he was associated with fellow naturalists. One of the monographs that interest us is his *Faunae Suecicae, pars prima* (vertebrata), 8vo, 1800. Of the same character as Retzius was Georg Ossian Sars (1837–?1909), who with collaborators (Daniel C. Danielssen, 1815–94, for example) described the marine life of north European seas and made many contributions to the oceanic fauna of other localities.

Writing under the pen-name of 'An old Bushman' H. W. Wheelwright contributed (1852–7) a number of monographs on Swedish and general Scandinavian vertebrate zoology. See the present Catalogue.

A survey of the flora and fauna of Iceland, Greenland, Lapland, Spitzbergen, the Faröes and neighboring islands was made by a French *Commission scientifique* between 1835 and 1846 in the corvette 'Recherche'. The results of these expeditions were published, 1842–4, in nearly 30 volumes, an immense work of great importance. We are chiefly concerned with the faunal descriptions given by one of the zoologists Paul Gaimard (1790–1858), who described many new species, especially in the *Voyage en Islande et au Groenland . . . 1835–36*, published Paris, 1840–4, 6 vols. text, 3 atlases with 250 plates. Associated with the name of Gaimard is that of Jean René Constant Quoy (1790–1869) whose combined and original contributions to zoology are so well known in connection with the famous voyages of the 'Uranie' and 'Physicienne' and the 'Astrolabe', 1817–18.

A contribution to the faunal history of Iceland well worth mentioning is Niels Horrebov's *Account*, published in London, 1758.

A monograph on Scandinavian ornithology, in both Danish and German, was published by J. E. C. Walter in 1828, a second edition appearing in 1832.

Magnus von Wright's *Finlands Foglar*, 1873, is one of the best studies of the birds of Finland yet published.

During 1878–1907, J. C. Schiödte published *Zoologia Danica*, which, though incomplete, is

an interesting semi-popular account of faunal life in Denmark.

Of other northern (sub-arctic) ornithology the birds of Iceland have been well described by Faber, whose *Prodromus der isländischen Ornithologie* was published as early as 1822. Since that date several travelers and various expeditions have furnished additional information regarding sub-polar fauna, birds in particular. Of these mention may be made of Baring-Gould's *Iceland; its Scenes and Sagas*, 1862. H. C. Müller has described the birds of the Faroes in his *Faeröernes Fuglefauna*, 1822, better known in its German translation.

Scandinavian ornithology, both general and local, is well presented in Collin's *Skandinaviens Fugle*, 1873; by the publication in 1856 of Kjaerbølling's *Danmarks Fugle*; by Sundevall's *Svenska Fåglarna* 1856–73; and by Holmgren's *Skandinaviens Fåglar*, 2 vols., 1866–73.

Attention must be drawn to the recent work of Einar Lönnberg, the last edition (1917–29), of that classic treatise *Svenska fåglar*—the Birds of Sweden, originally written by the Wrights, M. and W. The first edition appeared during 1828–38, and was the principal authority on the subject.

A valuable contribution to the systematic study of North European bird life is *Nordens Fäglar*, now in course of publication (1911–26, 48 parts), by Jägerskiöld and Kolthoff.

A truly great and well illustrated treatise (8 vols.) that was intended to include the avifauna not only of Denmark but of Greenland, Iceland, and the Faroes is Eiler Lehn Schiøler's (1874–1929) *Danmarks Fugle*. Two volumes had already been published and a third was under way when the distinguished author died.

A more recent and valued publication on avian life is Ivar Hartling's (1929) *Ornithologist Handbok . . . over all i Finland fagelarter*.

As has been noted, the avian literature of Norway is quite voluminous, of which one may quote Collett's *Norges Fugle* that first appeared in 1868 with a supplement in 1871 and an English translation by Cocks in 1894. Collett has also written an original work in English entitled *The Ornithology of Northern Norway*.

A new and very important contribution to Northern faunal literature is the account (not yet completed) given under the title *Fauna arctica*, 1900 to date. Several writers of note are included in this series, F. Römer, F. Schaudinn, A. Brauer, and W. Arndt among the number.

Several pages might easily be filled with a list of works on the *zoology of Germany*, in particular treatises on its avifauna, or rather upon the bird life of Central Europe. The most important of these appear (with brief annotations) in the appended Catalogue; only a few of the outstanding titles will be referred to here.

Although the complete series of H. G. L. Reichenbach's faunal cyclopedia, *Naturfreund* (1834–63), is almost unobtainable, yet parts of it are available and form a valuable contribution to general vertebrate zoology.

As already pointed out, of treatises on *avifauna germanica* the systematic volumes of the two Naumanns head the list. The various editions of these treatises, with their scientifically arranged text, beautiful plates, and well-printed pages, form models after which other faunal cyclopedias may well be fashioned.

Of the many early nineteenth-century efforts to describe and depict the fauna of Germany, local and general, the Compiler wishes to draw attention to the works of Carl Ludwig Koch (1778–1857) who, although he is best known as a writer on the *articulata* and other invertebrates of Middle Europe, also published several treatises on the vertebrate zoology of Germany. Among these were *Deutschlands Fauna* (written with J. Sturm); *System der Baierischen Zoologie*, 8vo, Nürnberg, 1816, and *Fauna Ratisbonensis*, 8vo, 1840, in collaboration with A. E. Fuernrohr.

One of the illustrators that furnished valuable information for the student of German nineteenth-century biology is the Nuremberg artist-naturalist-engraver Jacob Sturm (1771–1848). In conjunction with several others he

depicted with fidelity the flora and fauna of Central and Northern Europe. We are mostly concerned with his *Deutschlands Fauna in Abbildungen nach der Natur, mit Beschreibungen*, 4 parts, Nuremberg, 1797–1857; a fifth part, contributed after his death, by his son, J. H. C. F. Sturm. This is a magnificent series (about 25 vols.) well written and illustrated by hundreds of colored plates.

Newton (*Dictionary*, p. 39), commenting on the numerous works on the Birds of Germany, contents himself with an alphabetical list of the chief contributors. If we add some twenty or thirty names to the collection we may (by reference to the pages of the present Catalogue) gain a fair knowledge of the avifaunal literature of Middle Europe as it appeared in book form during the past 150 years. In passing, attention is drawn to *Die Vogel-Fauna von Norddeutschland* of Bernard Borggreve, 1869, that appends a bibliographical index of all the important literature on bird life to the date of publication.

This roster of Central European literature on bird lore displays the names of Brehm (the elder and younger), von Droste, Gätke, Gloger, Hintz, Holtz, Alexander and Eugen von Homeyer, Jäckel, Koch, König-Warthausen, Krüper, Kutter, Landbeck, Landois, Leisler, Leverkühn, von Malzan, Matschie, Bernhard Meyer, von der Mühle, Neumann, Reichenow, Tobias, Johann Wolf, and Zander—most of whose writings have found a place on McGill Library shelves and are listed in this Catalogue.

It must be remembered that certain well-known German ornithologists have written much about foreign bird life and little about the avifauna of their own country, among them Cabanis (editor of the *Journal für Ornithologie*), Finsch, Hartert, Hartlaub, Heine, Prince Max of Wied, A. B. Meyer, Nathusius, Nehrkorn, Reichenbach, and Schalow. To the above list may be added the South-German von Pelzeln.

Victor von Tschusi zu Schmidhofen wrote a monograph on Tyrolese birds, 1877, as well as an ornithological bibliography of Austria-Hungary, 1878.

The literature of *Switzerland's ornithology* is furnished in a useful *Bibliographia Ornithologica Helvetica* by Stölker in the *Bulletin de la Société Ornithologique Suisse*, vol. ii, p. 90, which gives a list to date of publication on Swiss birds. The names of Fatio and Studer are among the most prominent.

As regards Swiss vertebrates, one of the most reliable of the earlier writers on the subject is Heinrich R. Schinz (1777–1861) who in addition to numerous monographs on the fauna of his native land, e.g. *Verzeichnis der in der Schweiz vorkommenden Wirbelthiere*, 4to, 1837, published several works on European and general zoology. One of the former, in 2 vols., Stuttgart, 1840, is entitled *Europäische Fauna*.

The *faunae, especially the birds, of Portugal* have several times been described, in one instance rather well by an early, rare, and excellent five-volume work on vertebrate zoology by Pedro Blanchard, the *Thesouro de Meninos*; *Resumo de Historia Natural*, &c., Lisbon (1817–19); later a work by Barboza du Bocage, *Catalogue das Collecões Ornithologicae*, 1869.

The *birds of Spain* have not received, relatively, much attention, although Irby's *Ornithology of the Straits of Gibraltar* (two editions, 1875 and 1895) and Abel Chapman's *Wild Spain* (1893) cover the ground fairly well.

The overlapping of Romance literature is seen in zoology as well as in other departments of book-making, and there are several French faunal works that include the zoology of the Iberian peninsula and its neighborhood.

Italy is well represented by numerous works on vertebrate zoology, especially by the *Fauna d'Italia*, the second part of which, *Uccelli*, from the pen of that eminent zoologist, Count T. Salvadori, contains a good bibliography of Italian avifaunists. This author has written, among other treatises, an excellent *Elenco degli Uccelli Italiani* (1887) and Savi an *Ornitologia Italiana*, in 3 volumes, 1873–7. Still another and much more elaborate treatise is Giglioli's *Iconografia dell'Avifauna Italica*, in

/ Nathusius

Schmidhoffen. Both spellings given by Cat. Br. Mus. (Nat. Hist) p. 2147

five folio volumes, 1879–94, beautifully illustrated by hand-colored plates.

It will be remembered that Prince Lucien Bonaparte also wrote an *Iconografia della Fauna italica*, Roma, 1832–42, in 3 folio volumes.

The *animal life of Sicily* and its neighborhood was thoroughly described in several monographs by Oronzio Gabriele Costa (1787–1867). The earliest of these general descriptions is furnished by his *Fauna del Regno di Napoli*, &c., in 11 vols., 4to, col. ill., 1829–86, this monumental work having been continued by his son, Achille Costa, after the death of the father.

Among the noteworthy nineteenth-century writers on natural history was Alfred Malherbe, author of several monographs on Mediterranean flora and fauna; also of a *Faune ornithologique de la Sicile* (1843) and similar works on the birds of Algeria (1846 and 1855). Even more important is his two-volume (with Atlas) folio (Metz, 1861–2), the *Monographie des Picidées*.

A rather early, almost complete (and rare) catalogue of Italian vertebrate faunae was compiled by Giglioli in 1880, entitled *Elenco dei mammiferi* &c.

An Italian translation (1926), with notes, of Louis Figuier's popular work on bird life by Michele Craveri gives a fair account of birds in general with a more extended history of Italian avifauna.

E. G. Dehaut began in 1911 to issue *Matériaux . . . pour l'histoire zoologique . . . de Corse et de Sardaigne.* In the half-dozen fascicles so far published a very good systematic account of Mediterranean vertebrates is given.

Somewhat earlier (1840) Luigi Benoit in Messina had published his *Ornithologia Siciliana.*

G. Motorelli's *Monografia* on the birds of Sardinia, 1895, is a well written and well illustrated systematic essay, although Count Salvadori's *Catalogo degli Uccelli di Sardegna* (1864) made a good foundation for it.

M. Craveri's (1927) *Atlante ornitologico; Uccelli italiani*, Milan, 300 figs. on 50 col. plates, with descriptive and explanatory text, is a very useful, well arranged work showing the majority of Italian birds at a glance. Both the indigenous and migratory avifauna are pictured for the use of students and visitors, the systematic as well as the popular names of species being given.

E. Arrigoni degli Oddi published in 1929 his *Ornitologia* (36 col. pl.), an up-to-date account of birds of the world, an elaborate extension of the author's *Manuale di Ornitologia Italiana*, 1904.

The best account of the *birds of Hungary* is furnished by the works of G. Madarász (1899–1903).

Countries bordering on the Mediterranean were, during the troublous Napoleonic years, examined from time to time as to their faunal life by Baron Bory de Saint-Vincent, the results of which have been given by him and other writers.

The faunal life of the Adriatic and its shores was examined and reported on by Stefano Andrea Renier (1759–1830) in a posthumous, illustrated work entitled *Osservazioni posthume di Zoologia Adriatica*, Venice, 1847.

Greece, Turkey, and the Levant are partly represented in Tristram's *Flora and Fauna of Palestine*, 1884, and Shelley's *Birds of Egypt*, 1872.

A note may here be made of the *faunal literature of the Far East.* Hume and Marshall wrote on *Indian Game Birds* (1878–80), and on the *Nests and Eggs of Indian Birds* by Hume alone, 1889. These volumes may be regarded as supplementing the classic work of Oates and Blanford (*q.v.*), especially their monumental treatise on the *Fauna of British India*, 1889–90.

A profitable work on the *Mammalia of Ceylon and India* was published by Robt. A. Sterndale in 1884.

A brief but useful account of the mammals of Borneo was furnished by Chas. Hose, 1893.

Ceylon has received abundant attention from zoologists. In 1852 was published Kelaart's *Prodromus Faunae Zeylanicae*; Ten-

nent's *Sketches of Natural History of Ceylon* (1861); Legge's *Birds of Ceylon* (1878–80) with admirable colored plates by Keulemans, and (in 1925) Wait's *Manual of the Birds of Ceylon.*

During 1927–30 there appeared a noteworthy publication, a series of (48) *Coloured Plates of the Birds of Ceylon*, reproductions of fine drawings by G. M. Henry, made on the spot from live specimens of indigenous Island life. This is a Colonial Government publication, the original drawings having been loaned for the purpose by the Compiler of this Introduction and Catalogue.

Continental India has had a large share of literary contributions to studies of its fauna, much of it appearing in periodical literature. A Government series of great value, *The Fauna of British India*, by Blanford and Oates (Stuart Baker is now engaged on a second edition—in six or seven illustrated volumes—of the Avifauna) is the most important of these treatises, although Jerdon's *Birds of India* (1862–4) must be given first place as a forerunner. Blyth's posthumous *Mammals and Birds of Burma* (1875) must not be omitted from any bibliography, however incomplete, of Indian zoology.

Of the numerous contributions to a study of *animal—especially avian—flight* in its relation to aeronautics, a rather sensible study is an early one by Jean Huber, *Observations sur le vol des Oiseaux de proie*, 1784.

Here one may once more remind the reader of two remarkable books, first of that monument of industry, Godman and Salvin's *Biologia Centrali Americana*, 1879–1915, in which all the vertebrate sub-classes are wonderfully well described and depicted. To be bracketed with that fine collection is the much earlier *Fauna Boreali-Americana*, the quadrupeds and fishes by the Editor, Sir John Richardson; the birds by W. Swainson and Richardson.

Of works on the *morphology of bird life*, in 1867 there appeared in London an excellent translation of Nitzsch and Burmeister's (1840) classic work, *System der Pterylographie*, still an authority on the plumage distribution of birds.

Of anatomical books on birds one of the best is James Rennie's *Bird Architecture*, London 1844.

A very important original work of reference familiar to all research workers, is Führbringer's (1888, Amsterdam) *Untersuchungen zur Morphologie u. Systematik der Vögel.*

One of the many textbooks with anatomical illustrations is J. O. E. Perrier's admirable *Traité de Zoologie*, 1893–1928.

On the organs of special sense, M. G. Retzius' *Das Gehörorgan der Wirbelthiere*, in two illustrated volumes, 1881–4, is probably the most complete of otologic treatises.

Contributions to the scarce literature on *fossil eggs* have been made by the Compiler. See his essays on the *Fossil Eggs of Bermudan Birds* (by Casey A. Wood, 1923), and *A Fossil Bird's Egg from the Post-Tertiary Mud-Rocks of Fiji*, 1925, from the pen of the same writer.

A book notable for the colored illustrations characteristic of the author is John Gould's *Mammals of Australia*, 3 vols., 1845–63.

In 1871 J. L. G. Krefft published his folio, the *Mammals of Australia*, illustrated, preceded, in 1868, by his *Notes on the Fauna of Tasmania.*

The end of the nineteenth century and beginning of the twentieth was a period for publication of many *semi-popular volumes*, generally well illustrated in color, describing and depicting the fauna of the world. Of these may be mentioned Sharpe's *Royal Natural History*, four volumes of which (1898) are devoted to bird life; Frank Chapman's *Bird Life*, N.Y., 1898; Knowlton and Ridgway's (1909) *Birds of the World*—one of the best—and the *Standard Natural History*, published in Boston, the ornithology of which was (1885) edited by Stejneger, and the *Royal Natural History*, 1893–6, edited by R. Lydekker, who also wrote on the vertebrates. To this list may well be added two admirable compilations on avifauna, Evans (1900), in the *Cambridge Natural History Series*, and Pycraft's *History of Birds*, published in London, 1910.

A scientific monograph on the *Structure and*

Classification of Birds was published by Beddard, London, 1898. A few years before (1896) had appeared the first edition of Alfred Newton's famous classic, *A Dictionary of Birds.*

Returning to the other vertebrate classes, it will be noted that in 1902 was published Stone and Cram's *American Animals*, a work of great practical value to students. Shortly before this C. L. Herrick had written (1892) his excellent *Mammals of Minnesota.*

A useful manual is the recently issued (1929) *Field Book of Birds of the Panama Canal Zone* by Bertha Sturgis.

Richard C. McGregor has furnished us with a full description (1903–24) of the avian fauna of the Philippine Islands.

A very good popular and systematic account of Hawaiian birds is given by H. W. Henshaw, 1902.

That popular writer on New Zealand fauna, H. Guthrie-Smith, published in 1927 an interesting book entitled *Birds of the Water, Wood and Waste.*

French literature on vertebrate zoology is quite voluminous. In addition to that already noted, one of the most valuable and extensive undertakings is the *Faune Française* by Louis J. P. Vieillot (1820–1831) and other French naturalists. Eight volumes and an Atlas were published between 1820 and 1823; in a sense contributions have been made to it ever since, if (among many others) one includes such additions to this *histoire* as Paul Gervais' *Zoologie et Paléontologie françaises*, 4to, Paris, with an Atlas, 1850; second edition, 1859.

The fishes and other marine animals inhabiting the coastal waters of Southern France were, early in the nineteenth century, studied and described by Antoine Risso, in his *Ichthyologie de Nice*, 8vo, Paris, 1810, followed by his *Histoire naturelle des principales productions de l'Europe méridionale*, 5 vols., Paris, 1826.

Local French faunae, especially birds, are well described by a large number of writers whose productions are listed in this Catalogue. These are (*vide* Newton) chiefly Benoit, Baillon, Blandin, Bureau, Canivet, Chesnon, Degland, Demarle, De Norguet, Gentil, Hardy, Lemetteil, Lemonnicier, Lesauvage, Maignon, Marcotte, Noury, and Teslé. To this category may be added the more modern names of Ménégaux, René Paquet, and many others.

The last-named, under the pseudonym Nérée Quépat, has written an interesting *Ornithologie Parisienne*; Roux, *Ornithologie Provençale*, 2 vols., 1825–9; more important, Jaubert and Lapommeraye, *Les Richesses ornithologiques du Midi de la France*, 1859–61; Bailly, *Ornithologie de la Savoie*, 4 vols., 1853–4; Bouteille and Labatie, *Ornithologie du Dauphiné*, 2 vols., 1843–4; and two interesting monographs by Crespon, *Ornithologie du Gard*, 1840, and *Faune Méridionale*, 2 vols., 1844.

The faunal *vertebrate life of Belgium* has been frequently described, the best of the earlier treatises being by M. E. de Selys-Longchamps (1813–1900), entitled *Faune belge*; a monograph that long remained the chief authority on the subject.

As previously mentioned, Pierre J. van Beneden (1809–94) devoted most of his energies to a study of the fishes (living and fossil) and other marine life of the Belgian coast, but he also published occasional papers on the terrestrial animals of the Low Countries and other localities.

A well-known treatise, the *Planches coloriées des Oiseaux de la Belgique*, published 1854–60, by Ch. F. Dubois fully covers the avifauna. This work was so well received that it was supplemented by many additions and appeared (in 1861–4) as the *Planches coloriées des Oiseaux de l'Europe.* Between 1876 and 1894 Alphonse Dubois, son of Ch. F. Dubois, published a *Faune illustrée des Vertébrés de la Belgique* (2 vols. text, 2 vols. atlas), which is at the moment the best all-round work on the vertebrate zoology of Belgium. Newton draws attention to the excellence of the text-maps showing the geographical distribution of Belgian animal life.

Of the many *Dutch works on local vertebrate zoology*, there is room to mention that eminent family of naturalists, the Schlegels. Hermann

Schlegel's *De Dieren van Nederland*, 1860, and his *De Vogels van Nederland*, in their various editions (1854–78) furnish a useful account of Holland's vertebrate faunae. Among other authors of importance that have written on the animal life of the Dutch possessions we notice Büttikofer, Crommelin, Jentink, Albarda, and Blaauw.

Denmark's faunal life is described in a serial, *Danmarks Fauna*, issued by the Danish Natural History Society (1907 to date) and is well worth the student's attention.

The explorations of Alex. Humboldt in various regions have several times been mentioned. In 1829 he visited *Asiatic Russia* with the equally well-known naturalist-traveler, Christian G. Ehrenberg (1795–1876), whose contributions to the literature of vertebrate zoology have already been noted. The travels in Southern Russia of Prince Demidof (1812–70) are described in a *Voyage dans la Russie méridionale*, 4 vols., 2 atlases, 1840–2, in which the zoology of that region is to some extent pictured.

The Caucasus was explored in 1825–6 by Carl Eduard von Eichwald (1795–1876). This naturalist is among the best known writers on Russian floral and faunal life, both living and fossil. Among his publications are not only the *Reise auf dem Caspischen Meere und in den Caucasus*, 2 vols., Stuttgart, 1834–8, but other works of interest to zoologists, e.g. *Lethaea Rossica, ou Paléontologie de la Russie*, 3 vols. and atlas, Stuttgart, 1852–68.

Another voyage undertaken in the interests of Russian zoology was that of Peter Leopold von Schrenck (1826–94), reported in the *Reisen und Forschungen im Amur-Lande . . . 1854–56*, with colored illustrations, St. Petersburg, 1858–1900. Much of the fauna of northern Europe and Asia is well described in these interesting reports by Schrenck himself.

A survey of the Russian Empire under the auspices of the Russian Geographical Society in which Ernest von Hofmann (1801–71) gave an account of the zoology is entitled *Der nördliche Ural und das Küstengebirge Pae-choi*, Bd. II, St. Petersburg, 1856. Much more important and better known are the classic works of Alex. T. von Middendorff (1815–94), especially the *Reise in den äussersten Norden und Osten Sibiriens . . . 1843–44*, 4 vols. and atlas, St. Petersburg, 1847–75. This author has also written other treatises that include Russian vertebrates. Radde's *Ornis Caucasica* is a biologic-geographic study of great value—really one of the Russian naturalist's reports on the fauna of the Empire and of his various trips throughout the Czar's vast dominions.

A valuable contribution to the *vertebrate zoology of United States* territory is the monograph of Thos. H. Streets on the *Natural History of Hawaii* (1877) in which he has included Fanning Island and Lower California. This essay was originally contributed as *Bulletin No. 7* to the U.S. National Museum.

One of the several treatises on the *Birds of Hawaii* is S. B. Wilson's *Aves Hawaiienses*, 1890–9, an excellent systematic work, completed with the help of A. H. Evans and Hans Gadow.

Anthony's *Field Book of North American Mammals*, 1928, is to be highly recommended.

In 1860 (second edition 1861) Le Moine published his *Ornithologie du Canada*, followed in 1866 by his *Birds of Canada*, but none of these titles rose to the dignity of a complete study of the subject.

Other important titles in Canadian zoology are by C. E. Dionne, *Les Oiseaux de Canada*, 1883, and a *Catalogue des Oiseaux de la Province de Québec*, 1889.

A local Canadian naturalist, Ernest D. Wintle, published in 1896 a very interesting volume, the *Birds of Montreal*, pp. 14+281, with two plates and a map.

Reference must again be made to that excellent work on *Mammalia* (1902) by F. E. Beddard as Volume 10 of the *Cambridge Natural History*.

F. C. R. Jourdain's contributions to recent ornithologic literature include his *Eggs of European Birds*, 1906–9.

Probably the best popular work on general

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zoology is in four volumes, *Living Animals of the World* (about 1927), by E. G. Boulenger, W. P. Pycraft, and others, published by Hutchinson and Co., and profusely illustrated.

Economic ornithology is a wide subject barely touched in this Introduction, but it may be well to draw the student's attention to Junius Henderson's up-to-date digest of North American literature on the subject in his *Practical Value of Birds*, 1927. Perhaps the publications of the U.S. Dept. of Agriculture (Biological Survey in particular) are the most important and valuable contributions to this subject. One of many examples is E. R. Kalmbach's essays, mostly compiled for the *Farmer's Bulletin*—on the economic relations of birds to agriculture, 1920–30.

Chiefly because of the rarity of monographs on the subject one values Walter E. Collinge's *Study of the food of some British wild birds*, 1913.

An instructive work on the breeding of wild birds is H. K. Job's *Propagation of Wild Birds*, 1902.

The literature of *Bird Banding* (as a part of the study of Migration) is of comparatively recent date. Alex. Wetmore (*Ency. Brit.*, 14th ed., p. 927) refers to the attempt to mark wild birds with small bells, paint, colored yarns, &c., as much as 125 years ago, but it was not until the widespread introduction of aluminium bands that the methods became of scientific value. Audubon placed silver-wire rings on common phoebes to test their return to certain breeding localities. In 1899 C. C. Mortensen of Denmark began in systematic fashion to band ducks, starlings, storks, and birds of prey. Such good results followed that the plan was everywhere adopted.

The American Bird Banding Association began its work in 1909, afterwards taken over by the Bureau of Biological Survey, Dept. of Agriculture, at Washington. Now more than 1,500 persons are regularly engaged in the work and more than 350,000 birds have been banded. The accounts of this enterprise are found mainly in *Bird Banding Notes*, a monthly mimeographed periodical (1922 to date) issued by the U.S. Bur. Biol. Survey at Washington.

In this connection may be studied Dr. Wetmore's able and instructive *Migration of Birds*, 1927.

The literature of the courtship, mating, and reproductive habits of animals though not very large is important and interesting. The chief authority on this subject is Prof. Julian Huxley whose very valuable essays form part of the treatises listed in the accompanying Catalogue.

CHAPTER XIV

THE LITERATURE OF ZOOGEOGRAPHY — VERTEBRATE ECOLOGY — VERTEBRATE PALEONTOLOGY — ANIMAL PSYCHOLOGY — ZOOLOGICAL GARDENS, MUSEUMS, AND STATIONS.

A. R. Wallace—Prince of Monaco—Anton Dohrn—K. A. Möbius—E. A. W. Zimmermann—Treviranus—Illiger—J. A. Wagner—C. Pickering—Peter Pallas—Agassiz—Prince Bonaparte—Gloger—Ludwig K. Schmarda—von Sars—Oersted—Bartholomew—Frank Chapman—A. Dubois—T. H. Huxley—E. Forbes—R. Hall—R. F. Scharff—F. Beddard—A. Murray—C. J. G. Petersen—J. Schmidt—Karl Semper—Edward Cope—A. Heilprin—G. P. Moore—Migration of Animals—von Homeyer—A. Wetmore—A. Rauber—W. Roux—H. Spemann—Jacques Loeb—Yves Delage—Agassiz and Gould—Lydekker and Nicholson—C. Meyer—A. S. Woodward—von Zittel—T. Fechner—W. Wundt—Alexander Lehmann—Hans Przibram—Reports of Zoological Stations—U.S.A.—Louis Agassiz—W. K. Brooks—Wood's Hole—Pacific Grove and Jolla, California—N.Y. Zoological Station in British Guiana—Barro Colorado, Panama Canal Zone—Helgoland Observatory and other European Stations—Natural History Museums of the World and their Reports.

QUITE a few naturalists of importance have given much time to the study of *geographical biology* or to that division of it commonly known as *zoogeography*. Some general zoologists, like Alfred R. Wallace, have written extensively on the subject, and among those of that class not previously mentioned one must remember the oceanographic work done at the various marine stations, for example, that carried on by the Prince of Monaco. Among the earliest of these is the Aquarium at Naples, founded by Anton Dohrn (1840–1909). However, the *Zoologische Jahresberichte* and other publications, 1870 to date, of this famous scientific center are, like so many of its class, mostly taken up with studies of marine invertebrates inhabiting the plankton and other submarine areas. In consequence they find no place in the present compilation and Catalogue.

Among the pioneers in this field who studied local vertebrates as well as other forms of marine life was Karl August Möbius (1825–1908). His famous book *Die Fauna der Kieler Bucht*, 1865, is a model of its kind; he measured carefully the estuary that he describes so that he might report upon the exact positions and areas its marine animals and plants occupied. Indeed, Möbius may be said to be the father of modern ecology.

As pointed out by Victor Carus, in a study of general zoogeography one should bear in mind the comparatively early contributions to that subject by Eberhard A. W. von Zimmermann (1743–1815). In 1777 he published in Leyden *Specimen zoologiae geographicae, quadrupedum domicilia et migrationes sistens*, pp. 685, 4to, followed by a much enlarged German edition, 1778–83, Leipzig, in 3 volumes. These treatises were succeeded by several other contributions to the same subject, e.g. those of Rudolph Christian Treviranus (1779–1864), *Neue Untersuchungen . . . der thierischen Körper*, Bremen, 1835; J. C. W. Illiger (1775–1813) . . . *Prodromus systematis Mammalium et Avium*, Berlin, 1811, and other essays of similar import.

In 1873 N. A. Syevertzov (1825–85) wrote

an essay on the vertical and horizontal distribution of Turkestan animals.

Peter Pallas has given us a good idea of the distribution of faunal life throughout the old Russian Empire in his *Zoographia Rosso-Asiatica*, 1831, and in his other voluminous writings.

Johann A. Wagner (1797–1861) published *Die geographische Verbreitung der Säugethiere*, München, (?) 1845; (the American) Charles Pickering (1805–78), *The Geographical Distribution of Animals and Plants*, fol., 1854–76 (and 1863), Boston, one of the reports of the United States Exploring Expedition under C. Wilkes; Ludwig Karl Schmarda, *Die geographische Verbreitung der Thiere*, pp. 755, Wien, 1853; to which may be added, among many essays and treatises, the studies of Agassiz and Schlegel, who, in addition to registering and mapping the regions occupied by faunal species, have advanced hypotheses and theories to account for the areas and limits of habitat and migration.

An edifying example of zoogeographical treatment is Prince Bonaparte's geographical and comparative *List of Birds of Europe and North America*, 1838.

The early efforts of Michael Sars (1805–69) to do for submarine or oceanic depths what many others have since his time done for mountain flora and fauna in the establishment of zones of elevation as part of zoogeography, must not be passed in silence.

Sars' *Fauna littoralis Novegiae*, 1846–77, gives a fair account of his theories, and one might here point to the recent work of Frank S. Chapman in South America in which he successfully relates the occurrence of definite faunal species with well-defined altitudes, ranges of temperature, amount of rainfall, &c.

As early as 1833 C. W. L. Gloger wrote *Das Abändern der Vögel . . . durch Einfluss des Klima's, und bei den Europäischen Säugethieren.*

One of the comparatively early studies in ornithological zoogeography is seen in A. Dubois' *Conspectus systematicus et geographicus Avium Europaearum*, 1871. In the same year T. H. Huxley delivered his celebrated lecture on the *Geographical Distribution of Animals.*

Further examples of zoogeography based on physical conditions are several papers by Edward Forbes (1815–54), including the *Connexion between distribution of the Fauna and Flora of the British Isles . . . and geological changes*, Memoirs, I, 1846, that contain valuable data on that subject. Later he elaborated his theories (as to homozoic belts), the result of studies made on the zoological collections gathered during the *Voyage of the 'Herald'*, 1852–4, and from other expeditions of like character.

Another edifying account of avian distribution (in Australasia) is R. Hall's *Key to the birds of Australia and Tasmania with their geographical distribution*, 1899.

As exemplifying the many hypotheses advanced to account for faunal distribution Anders S. Oersted (1816–71) endeavored to prove that the coloration of fishes depends largely upon the depth zones which they inhabit. See his *De regionibus marinis*, 1844.

A most valuable and graphic guide to regional zoography is Bartholomew's *Atlas of Zoogeography*, with numerous colored maps.

In the domain of local avian distribution a painstaking work is now (1930) being issued in parts by H. G. K. Molineux giving a *Catalogue of Birds and their Distribution in the Western Portion of the Palaearctic Region.*

A thoughtful work on zoogeography is R. F. Scharff's *European Animals; their geological history and geographical distribution*, 1907.

F. Beddard in 1895 wrote a *Text-book of Zoogeography* for the Cambridge *Natural Science Manuals.*

Andrew Murray has written a very important quarto (London, 1866) on the *Geographical Distribution of Mammals*, illustrated by 101 colored maps; and J. Palacký has done the same for Birds (1885) and for Fishes (1891).

Incidentally, J. A. Palmén wrote a controversial work entitled *Ueber die Zugstrassen der*

Vögel (1876) which was attacked by von Homeyer. During the discussion some light was thrown upon moot points on both the migration and distribution of bird-life. Shortly before this date Eugène Rey wrote his *Synonymik*, 1872, on practically the same subject.

One of numerous articles on local zoogeography is E. D. Cope's *Geographical Distribution of Batrachia and Reptilia in North America.*

In 1882 and 1892 M. A. Menzbír published (in Russian) his illustrated *Ornithological geography of European Russia.* Earlier still another observer, A. T. von Middendorff, published (1859) an account of the seasonal flights of Russian birds.

A. Heilprin's *Geographical and Geological Distribution of Animals*, issued with a colored map (1887), gives an excellent idea of faunal zoogeography. A different view will be found in R. F. Scharf's *History of the European Fauna*, 1928.

R. Lydekker has written on the distribution of game animals throughout the world. See, e.g., his *Great and Small Game*, 1901.

George P. Moore's study (1879) of the geographical range of 376 avian species of British Birds is of great interest.

A comprehensive study of faunal distribution is W. L. and P. L. Sclater's *The Geography of Mammals*, 1899.

Closely related to zoogeography is that important subject—the *migration of animals* (in particular the far and wide wanderings of birds), about which so much has been written from the earliest to the present times. This fascinating study is considered in almost all general zoological treatises; also in numerous monographs, a few of which are mentioned here. An enlightening work, among many, is that of E. F. von Homeyer, *Die Wanderungen der Vögel mit Rücksicht auf die Züge der Säugethiere, Fische und Insecten*, 1881, while the latest theories as to bird migration are fully discussed by Alex. Wetmore in his *Migration of Birds*, Cambridge, Mass., 1927.

A very good account of European bird migration is published by Ottó Herman in his *Recensio critica*, 1904.

Wells W. Cooke has written and published, mostly through the Bulletins of the Department of Agriculture, U.S.A. (1910–15), several very valuable monographs on avian zoogeography and migration throughout the United States including an account of their relations to migration in general.

Among *ecologists* are C. G. J. Petersen (b. 1863) who has investigated and reported on the animal life inhabiting the bays and inlets of his native Denmark; J. Schmidt (b. 1877), the authority upon the reproduction and life habits of that vertebrate mystery the eel. In like manner Karl Semper (1832–1893), professor at Würzburg, has reported upon the life conditions and distribution of many animals and their particular environments.

The teaching of *comparative biology* is now commonplace, but it was not when A. A. Gould and Louis Agassiz published the first edition of their *Outlines of Comparative Physiology* in 1855.

Among *paleontologists with vertebrate zoological leanings* was the celebrated American, Edward D. Cope (1840–97), who did such yeoman service in the cause of zoological science, most of it recorded in Smithsonian and State Departmental literature. Of these several are mentioned elsewhere, but one may recall his *Synopsis of Extinct Reptilia . . . of New Jersey*, 1868, and his editorial labors on the *American Naturalist.* Dr. Cope especially encouraged collaboration with other writers and a list of several conjoint titles will be found in this Catalogue.

Among the readable works on faunal paleontology are the *Manual* of Lydekker and Nicholson, 3rd edition, 1889; Christian Meyer's *Zur Fauna der Vorwelt*, in 4 vols., 1845–60, and, to jump across the Atlantic, the series of articles on *Fossil Vertebrates* extracted from the *Bulletins* of the American Museum of Natural History, the first volume of which was published in 1898.

One of the best modern textbooks on

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paleontology is Johann H. Steinmann's *Einführung*, whose second edition was issued in 1907.

Paleontology is exhaustively treated, also, in Stromer von Reichenbach's two-volume *Lehrbuch*, 1909–12.

Another excellent manual is A. S. Woodward's *Outlines of Vertebrate Paleontology*, 1898. The other captions of this noted paleontologist should also be looked up in the present Catalogue.

An excellent and reliable popular life-history of extinct fauna is K. A. von Zittel's *Aus der Urzeit*, 1871–2. Von Zittel has also written an excellent *Handbuch der Paläontologie*, 1876–1893, with English translations from the original German amended by numerous collaborators and continued as a series of monographs until the present time. Altogether it is the most comprehensive, modern cyclopedia of extinct and fossil fauna so far attempted.

H. A. Nicholson (alone) has also given us an admirable and popular *Manual of Zoology* (seventh edition, 1887), in which extinct animals are described.

A popular but reliable work on vertebrate paleontology, written by Prof. Kirtley Mather of Harvard University, 1930, is entitled *Sons of the Earth*.

Within the province of vertebrate zoology the records of *experimental morphology* are not voluminous; plant life seems to be a more fertile field for the investigator. Still, we have the descriptions of August Rauber (1845–1917) who in his experiments with the vertebrate embryo sought to discover the laws that govern its development. Among numerous monographs he wrote *Ueber die Stellung des Hühnchens im Entwicklungsplan*, 1876.

The founder of the school of *evolutionary physiology* was Wilhelm Roux (1850–1924), born in Jena. He held professorial chairs at Innsbruck and Halle and worked assiduously to popularize his novel methods of zoological experimentation. His *Collected Essays* appeared in Leipzig, 1895.

Many of these biological experiments appear weird to one who is acquainted with advanced laboratory methods, but their value is unquestionable. One of the best known experimental morphologists of the day is Hans Spemann of Stuttgart (b. 1869), who has held several professorial chairs in German universities. The reports of his work are mostly contributed to periodicals.

Finally, let us not forget Jacques Loeb (1859–1925), graduate in medicine and *privat docent* at Würzburg, professor in Chicago University, and for several years attached to the Rockfeller Institute, who made many chemical and other remarkable experiments on the embryo. Frogs and sea-urchins were the chief material on which these experiments were carried on. An important work by Loeb is *The Mechanistic Conception of Life*. Yves Delage (1854–1920) reached results similar to those attained by Loeb but by different methods.

Several works on *vertebrate embryology* have already been mentioned. To these may be added T. L. W. Bischoff's volumes, 1852. See the titles listed in this Catalogue and on the cards of the Medical and Osler Libraries of McGill.

A treatise worth consulting is M. H. Rathke's *Entwickelungsgeschichte der Wirbelthiere*, 1861, that furnishes a good history of faunal embryology as known in the late fifties.

Until the middle of the nineteenth century *animal psychology* was far from an exact science. Writers in the past either attributed purely human concepts to animals or they, like Descartes, regarded them as mere automatons. Although it is not the purpose of this Introduction to go very deeply into the subject, it is proper to direct attention to the writings of Theodor Fechner (1801–87) and Wilhelm Wundt (1832–1920). The latter wrote, among other contributions to the subject, *Vorlesungen ueber . . . die Tierseele*, Hamburg, 1892. Several English and French writers have also contributed to the literature of comparative psychology.

The experimental side is discussed by Alfred

Lehmann (1858–1921), professor at Copenhagen, who holds that the chief consideration in comparative psychology is the extent to which the organs of the lower animals resemble those of man. He is best known by his *Grundzüge der Psycho-physiologie*, 1912.

Students interested in the subject will find a most useful contribution in H. Przibram's *Experimental-Zoologie*, four volumes of which (1907–13) are in the Blacker Library.

The establishment of *zoological stations* is closely connected with the literature of vertebrate zoology since the reports and journals published by them often furnish information of great value to students of that specialty.

In 1873 Louis Agassiz founded a public station on Penekese Island, Buzzard's Bay, Mass., and later Alexander Agassiz set up a private research laboratory at Newport, R.I. At about this period W. K. Brooks, Johns Hopkins University, became the founder of several stations in the Southern States, while in 1889 the U.S. Fish Commission opened its well-known research station in Beaufort, N.C. This was followed by the Marine Biological Laboratory at Wood's Hole, Mass., the large marine laboratory of the Brooklyn Institute at Cold Springs Harbor, L.I., and the U.S. Tortugas Zoological Laboratory under A. G. Mayer.

A very useful Biological Station for Research is maintained in Bermuda by Harvard University, published reports of which appear from time to time.

Stanford University has opened an important research and teaching station at Pacific Grove, Monterey Bay, Calif., and the University of California an equally famous marine station near La Jolla, Southern California.

Among other numerous (freshwater) zoological stations in America may be mentioned —as contributors to the literature of vertebrate zoology—the Illinois State Laboratory of Natural History at Havana, Ill., the station of Indiana University at Winona Lake, the U.S. station at Put-in-Bay, Lake Erie, and the laboratory-station at Sandusky, Ohio, founded by the State University. Of considerable importance, also, was the tropical station (now unfortunately abandoned) of the N.Y. Zoological Society under the care of C. W. Beebe, located 50 miles up the Essequibo River in British Guiana, and first utilized in 1915. The Compiler spent a winter there and can testify to its valuable activities.

Several useful laboratories and stations have been founded by various Canadian activities. Prominent among these is the Marine Station at Nanaimo, B.C.

Still better situated, perhaps, especially for the study of Central American fauna, is the U.S. Sanctuary at Barro Colorado in the Canal Zone. The London *Times* (Literary Supplement, March 13th, 1930) thus describes it in a review of Frank M. Chapman's *My Tropical Air Castle*, 1930:

'When the Gatun Dam was finally closed in the building of the Panama Canal, the Chagres river flooded about 165 miles of lowland and made islands of the hills; and the largest of these islands is Barro Colorado, roughly circular in shape and with a diameter of about three miles. In 1923 this island-hill was made a nature reserve by the Governor of the Canal Zone and was placed in charge of the Institute for Research in Tropical America, which is a branch of the American Government's National Research Council. Here, with the lavishness which the American Government is able to afford, there has been established a laboratory for the study of the fauna and flora of the region which comes enviably near to the ideal. In comfortable quarters specialists in various branches of biology live at their ease in an excellent climate where malaria is unknown, 450 feet above the level of the lake, with the unbroken primeval forest as their backyard, and unlimited ice and other luxuries punctually delivered to them from steamers passing through the Canal. If the world so far has heard little of Barro Colorado, it can hardly fail to hear very much more. As Dr. Chapman rather quaintly puts it, it is "on the threshold

of what should be an increasingly important existence". It is probable that, as the floods slowly rose, the wild things would retreat into the safety of the high ground; so Barro Colorado may have more than its natural stock of birds and beasts. Dr. Chapman catalogues some 230 species of birds which have already been observed; and the three-mile section seems to contain, with the single exception of the jaguar, all the larger mammals of tropical America, including puma, ocelot, tapir, two kinds of peccary and two of deer, four monkeys, two sloths, tayra, agouti, coati, etc. Flashlight photographs of most of these, self-taken by the use of trip-wires stretched across the trails or in other likely places, are an attractive feature of this volume. But Dr. Chapman is primarily an ornithologist and he has studied closely and tells interestingly of the nesting habits of the oropendolas, or American orioles, and the grackles and fly-catchers which are parasitic on them by nest-robbery; of the mating of parrots, the pluck and fighting qualities of humming birds and of the coloration of forest species and of the purple gallinule and jacana of the open sunlight. His experiments come near to proving that, among vultures, the so-called turkey-buzzard is guided to its food by scent much more than is generally supposed. He also gives the pathetic story of an attempt to tame a young of the notoriously untamable "howler" monkey, the old men of which have faces which are "the incarnation of every evil thought that has ever passed through the mind of man".'

In the development of economic ichthyology not only the United States and Canada but Great Britain and her colonies have established special laboratories for the study of piscine life and culture. Here may be mentioned the valuable Liverpool Sea-fisheries Laboratory. Many of these stations issue Reports, &c.

In Europe, also, many governments and societies have established schools, observation stations, and laboratories for zoological observation and research. Among them Germany and Northern Europe, at Helgoland; at Rossitten; Plon (founded 1892); at Kiel; on islands in the White Sea; at Kielkond; Oesel, founded 1909. Other stations are at Tromsö, Norway; at Kristineberg, well-known Swedish station; at Copenhagen, and at St. Andrews (Scotland). Further south we find laboratories developed at Plymouth; on the Isle of Man. In France there are stations at Coste in Brittany; at Wimereux; at Cette (Montpellier); at Saint-Vaast-le-Hogue; at Finistère (Roscoff); at Villefranche on the Riviera. In Italy there is a University Station at Naples; an Austrian station at Trieste; a Russian zoological station at Sebastopol; and at many other European points not mentionable here. These institutions contribute more or less to reports and other records on vertebrate fauna, works whose titles will be found in the body of the present Catalogue.

Lack of space permits the listing here of only a small number of the many European Museums of Natural History and of their publications—and the same may be said of similar institutions in America and elsewhere—but their literary output, so far as they touch vertebrate zoology, will be found in the appended Catalogue.

A useful guide to most North American institutions of this kind is F. J. H. Merrill's *Natural History Museums of the United States and Canada*, 1903.

Federal, Municipal, private and other Museums furnish their quota of literary material in vertebrate zoology. A number of these have been noted. Just here the Compiler draws attention to the admirable and useful publications issued by the Indian Museum of Calcutta, dating from 1881. These are all entered in the present Catalogue.

An admirable Natural History Museum, organized mainly by the late Herbert Robinson, publishing the Federated Malay States *Journal* (Kuala Lampar, 1905 to date), furnishes a typical example of many institutions of the kind in the Far East.

Another active institution is the Capetown

South African Museum, publishing its *Reports* and *Annals* since 1856.

To the long list of American Museums largely devoted to vertebrate zoology and its literature belongs the well-known Museum of Comparative Zoology (Harvard University) that since 1861 has issued a series of important periodicals, among them its *Bulletin* published from 1863 onwards.

The many zoological publications of the Smithsonian Institution, of the Philadelphia Academy of Sciences, the Museum of Vertebrate Zoology, University of California, and other American institutions of this kind will be found listed in the appended Catalogue.

The numerous publications of the New York American Museum of Natural History (founded in 1860) began with the *Annual Report* in 1870, since when the wonderful growth of the institution has produced much valuable periodical literature, listed in this Catalogue; and the same may be said of the N.Y. Zoological Society founded in 1895.

Of the several works devoted to the management of museums and zoological gardens in general (including the preparation of objects for the former) that of P. L. Martin, *Die Praxis der Naturgeschichte*, Weimar, 1869–82, is to be recommended.

The literature, generally annual reports, on vertebrates confined in *menageries, zoological gardens* and private collections, can have only a passing reference, although it is occasionally of importance. Confined animals furnish valuable information in comparative biology, especially in animal pathology, anatomy, physiology, and psychology—not to speak of classification—but ecological notes of caged fauna must always be viewed with some distrust since birds and beasts do not always behave in captivity as is their wont in the jungle.

CHAPTER XV

IMPORTANT TREATISES ON ICHTHYOLOGY FROM THE EARLIEST TIMES TO THE PRESENT.

Bashford Dean—Oppian—The Kerns—Belon—Salviani—Rondelet—Gesner—Bossuet—von Schonfeld—Paolo Giovio—Sonnini—Donovan—Seeley—Marcus Bloch—Georgius Fabricius—Gottfried Voigt—A. Günther—Goode and Bean—Aclogue—U.S. Expeditions—A. Guichenot—Julian Woods—E. R. Waite—D. H. Storer—G. D. Stead—T. N. Gill—Evermann—Eigenmann—David Starr Jordan—L. Vaillant—G. A. Boulenger—H. Sauvage—A. Valenciennes—Pieter Bleeker—Max Weber—E. Geoffroy Saint-Hilaire—S. J. Hickson—William Houghton—F. G. Aflalo—Charles Henry Gilbert—Murray and Hjort—Wm. Houghton—Siebold—J. Couch—Blanchard—W. Grote—W. Wright—W. Lilljeborg—Reuter and Mela—B. F. Fried—Day—Hutton and Hector—Weber and Beaufort—Agassiz—A. Griffini—F. Supino—W. P. Pycraft—Bertram—J. T. Jenkins—G. B. Goode.

TITLES in ichthyology, systematic, economic, and popular, are almost as numerous as those on mammalogy; certainly they exceed in number the tale of treatises on herpetology and amphibiology.

In particular one notices in a well-equipped library hand-colored folios and quartos illustrating piscine species that remind one of the voluminous and magnificently illustrated atlases on ornithology. Some northern and many tropical fishes lend themselves to ornate decoration. Attempts to reproduce their brilliant, glowing coloration by the use of gold and silver leaf, aluminium paint, and similar means are vain efforts to present the resplendent and iridescent magnificence of these scaly denizens of the deep. In addition to such considerations, the world-wide value of fishes as food secures the attention of both governmental and private activities with print, brush, and pencil.

Relatively few of the large number of ichthyologic works shelved in the McGill libraries can be mentioned here, but the attention of the student is called to the chief authorities on this important subject, especially to the complete *Bibliography of Fishes* by Bashford Dean and his collaborators.

Inasmuch as many valuable accounts of fishes from various parts of the world—particularly pelagic species—are to be found in the records of Voyages, numerous examples of these are given in this Catalogue, especially under *United States* headings.

Ancient literature has occasionally something to say worth repeating about the natural history of fishes. The English translation of Oppian's Greek poem (see Oppian's *Halieuticks of the Nature of Fishes and Fishing of the ancients* in five books, Oxford, 1722) well sums up all that was really known about Greco-Roman ichthyology. The rarer editions of Oppian, including the unique 1508 printing, are in the McGill collections.

Of the early treatises on ichthyology, Belon's well-known (French) monograph appeared at Paris in 1551. Two years later he published in Latin his chief work on Fishes, a French edition of which appeared in 1555. Belon's treatises are actually the first works on the subject that one may take seriously. They are genuine contributions to ichthyology and mark a decided advance over former writings on the subject.

Hippolyte Salviani (1514–72), Roman physician to several popes, wrote his *Aqua-*

tilium animalium historiae in 1554–8, a folio that was probably not compiled from Belon and, in consequence, lacks many of the scientific features of Belon's monumental treatise. Nevertheless, it forms one of the outstanding early contributions to systematic ichthyology.

Another important—perhaps the most important—ichthyologist of the sixteenth century was Guillaume Rondelet, another medical man, born in 1507, who described with great care and accuracy more varieties of Fishes than either Belon or Salviani. His masterpieces, *Libri de Piscibus*, &c., 1554, and *Universae aquatilium Historiae*, &c., 1555 (both folios) appeared four years before the versatile Gesner published his *Ichthyologia*, in which, by the way, much of Rondelet's observations are included. In all he catalogued and described 205 oceanic and 59 freshwater species; of the total 264, 239 are figured by woodcuts.

In 1558 F. Bossuet wrote a sort of supplement to Rondelet, entitled *De natura aquatilium carmen in universam Gul. R.* &c., Leyden.

Another physician, Stephen von Schonevelde of Hamburg, wrote in 1624 an important *Ichthyologia*, describing the fishes of his locality.

In addition to the many piscine volumes written by sixteenth-century doctors of medicine there were a few non-professional authors, among them Paolo Giovio who described (*De romanis piscibus libellus*, 1524–7) Roman fishes. His small work passed through several editions and was translated into Italian by C. Zancaruolo of Venice in 1560.

In passing, mention must be made of Georgius Fabricius, who wrote *Fishes of the Elbe*; of the Kerns (father and son) and of Gottfried Voigt who in 1667 published at Wittenberg his dissertation *De Piscibus fossilibus atque volatilibus*.

From the last-named title it will be seen that *animal fossils* early attracted attention; indeed their origin was commonly discussed by naturalists of the Middle Ages, most of whom agreed without a shadow of doubt that they were *plantés là* by a wise Creator for his own inscrutable purposes.

Felix Plater (*Observationes*, Basel, 1680) regarded the bones of a mammoth or aurochs found near Lucerne as those of a giant, but Ferrante Imperato (*Historia naturalis*, 1599) illustrated his work with drawings of fossils that he correctly surmised—as did others at that time—had been deposited in mountains that had risen from the primitive ocean. This Introduction does not pretend, however, to enter, except occasionally, into the fascinating field of piscine paleontology.

One of the most important of the Buffon 'suites' is that by T. S. Sonnini, the *Histoire naturelle, générale et particulière des Poissons*, 1802–5, Paris, in 14 volumes. It is admirably illustrated by colored plates and is regarded as a classic by systematists.

Reference has already been made to the zoological works of Edward Donovan (1768–1837), and one must not forget his valuable and extensive *Natural History of British Fishes*, in 5 vols., with col. pl., London, 1802–8.

A noteworthy and comparatively early treatise is Wm. Yarrell's *History of British Fishes*, in two volumes, 1835–6, followed by two editions in 1841 and 1859.

Another important ichthyologic treatise is H. G. Seeley's *Freshwater Fishes of Europe*, 1886.

An early systematic treatise on fishes is P. M. A. Broussonet's *Ichthyologia sistens Piscium descriptiones et icones*, with plates, a quarto issued in London about 1782.

A noted ichthyologist of the late eighteenth century was Marcus Bloch (1723–99) whose classic treatise on German and foreign fishes (*Naturgesch. der ausländischen Fische*, 1785–95) appeared as part of his voluminous *Allgemeine Naturgeschichte der Fische*, beautifully illustrated.

As a model presentation of such subjects one should read the *Fish of the Voyage of the Beagle*, by L. Jenyns.

Practically every scientific oceanic expedition investigated fishes, a typical example being the report by L. Vaillant on the ichthyology of the *Mission du Cap Horn*, 1888; the

δ/—/metrical version of

account given of deep sea fishes by A. Günther in the *Report of the Challenger Expedition*; the record, by A. Valenciennes, of the fishes caught during the cruises of the 'Vénus', 'Bonite', 'Favorite' and similar French scientific expeditions.

Reference has several times been made to that monumental work, an annotated *Bibliography of Fishes* (1916–23), in three volumes, the joint work of three accomplished ichthyologists, the most important contributor being the first author, Bashford Dean. Every serious student of piscine life and every natural history library should be *en rapport* with this almost unique production.

Two Americans (George B. Goode and T. H. Bean) collaborated to produce a monograph, in two volumes, on *Oceanic Ichthyology*, well illustrated by 123 plates. A rare treatise is J. V. G. Smith's *Natural History of the Fishes of Massachusetts*, published in Boston.

A good, recent account of French ichthyology is given by A. Aclogue in his *Faune de France*, 1900.

As previously stated, the Federal government of the United States has from time to time dispatched expeditions that secured large collections of vertebrates, including fishes, many reports of which are listed and annotated in the present Catalogue, chiefly under the heading *United States*. Among these are accounts by well-known zoologists of the cruise of the 'Corwin' to Alaska and the N.W. Arctic Ocean in 1881; the International Polar Expedition to Pt. Barrow, Alaska, &c., 1885; Exploration of the Valley of the Amazon, 1853–4; U.S. and Mexican Boundary Survey, 1857–9; the U.S. Naval . . . Expedition to the Southern Seas, 1855; Expedition down the Zuni and Colorado Rivers, 1853; Pacific Railway Survey, 1855–9, and a dozen others in which the ichthyology of the expeditions was more or less completely treated.

One must draw attention to the admirable review of American economic ichthyology in *Fisheries and Fishery Industries of the United States* (1884–7), edited by G. B. Goode.

The fishes and reptiles of Chile are described and pictured by A. Guichenot in Claude Gay's excellent *Historia de Chile*, 1848–9.

In 1882 Julian Woods described the *Fish and Fisheries of New South Wales*, followed by E. R. Waite who wrote the *Marine Fish of New South Wales* in 1898.

D. G. Stead has written a report on the *Edible Fishes of New South Wales*, 1908, illustrated by 81 plates and a colored map, a supplement to his more important *Fishes of Australia*, 1906.

An early and important New England ichthyologist was David H. Storer (1804–91) whose reports on the fishes and reptiles of Massachusetts (1839) and his *Synopsis of the Fishes of North America* (1846) are well known to systematists.

Of the numerous contributions by T. N. Gill to American ichthyology his *Catalogue of the Fishes of the Eastern Coast*, 1873, and his contribution to Kingsley's *Standard Natural History* (1885) may be mentioned. Another American work of value is Girard's *Ichthyology of the (Mexican) Boundary*, illustrated by 41 plates, 1859.

A book, both popular and scientific, is C. Z. Southard's *American Trout*, 1928.

Here may also be noted Kilbourne and Goode's *Game Fishes of the United States*, 1879, with 20 colored plates.

The fishes of Peru are described and depicted in J. J. von Tschudi's *Fauna Peruana*, 1844–6.

Evermann and Radcliffe have also written on the *Fishes of the West Coast of Peru*, a work illustrated by 14 colored plates, 1917 (*U.S. Nat. Mus. Bull. 95*).

S. E. Meek's well-known *Freshwater Fishes of Mexico* was published in 1904, and C. T. Regan in 1906 contributed his section on Pisces to the *Biologia Centrali-Americana*, in which many Mexican species are described.

That well-known authority on American ichthyology, Carl H. Eigenmann (1863–), has written extensively on the fishes of South America; for example, his *Freshwater Fishes of British Guiana*, an elaborate report pub-

lished as a *Memoir* by the Carnegie Institute (Pittsburg) in 1912. Other titles of Dr. Eigenmann appear in the present Catalogue.

The fishes of North Borneo are described (in Whitehead's *Exploration*, 1893) by L. Vaillant, as are the marine and freshwater fishes of Malaysia by J. Johnstone and G. A. Boulenger. See *Fasciculi Malayenses*, 1903.

Madagascar is well represented in ichthyologic literature by H. Sauvage's classic contribution to A. Grandidier's *Histoire physique*, 1875–1900, of that island. Zanzibar was similarly treated (1866) by R. L. Playfair and A. C. L. G. Günther, with the aid of 21 colored plates.

R. T. Lowe's *Fishes of Madeira*, 1843–60, with 17 colored plates, should also be borne in mind.

The ichthyology of the Canary Islands was described by A. Valenciennes in 1836–44.

As one of a series published by Stanford University, E. C. Starke gives an account (1913) of the *Fishes of the Stanford Expedition to Brazil.*

Among accounts of local African fishes is the description of the catch made during the progress of the *Mission Chari-Lac Tchad, 1902–4*, under Auguste Chevalier. In the appendix the ichthyology of the expedition is treated by J. Pellegrin.

Between 1862–78 the celebrated Dutch ichthyologist, Pieter Bleeker, was engaged in bringing out his famous *Atlas Ichthyologique*, in nine folio volumes, whose splendid colored plates picture the fishes of the Netherland East Indies.

The freshwater fishes of the Indian Archipelago are carefully described by Max Weber in *Zoologische Ergebnisse*, 1894. He also wrote a similar account for Wichmann's *Nova Guinea*, 1906.

As early as 1803 there appeared a description by Patrick Russell of 200 species (and colored figures) of Indian fishes collected along the coast of Coromandel.

The student of East Indian ichthyology should not neglect the several descriptive catalogues issued by the Calcutta Indian Museum—especially those by A. Alcock.

Mention might here be made to a useful work, illustrated, Buchanan's *Fishes of the River Ganges*, 1822.

E. Geoffroy Saint-Hilaire (*Description de l'Égypte*, 1809–30) wrote a *Historie naturelle des Poissons du Nil, de la Mer Rouge et de la Méditerranée.* It may here be added that E. Rüppell also wrote (1828) an illuminating account of Red Sea fishes, illustrated by 35 colored plates.

In 1913 C. Alluaud described the fishes collected from Lake Victoria Nyanza.

In 1902 G. A. Boulenger wrote a well-illustrated work on the fishes of the Nile, and in 1907 contributed a list of the fishes in the River Gambia, West Africa.

A useful book for the advanced student is G. A. Boulenger's *Catalogue of the Freshwater Fishes of Africa* in four illustrated volumes, 1909–16.

Among the most famous of the world's herpetologists and ichthyologists stands A. C. L. G. Günther, a few of whose works will have the required mention here. His contributions to the literature on reptiles and fishes of the British Museum are well known, many of them listed in the appended Catalogue.

Of quite another class, though a very interesting one, is S. J. Hickson's *Fauna of the Deep-Sea*, 1894. To the same category belongs E. W. H. Holdsworth's *Sea Fisheries*, London, 1877.

Although of local importance only and one of many such books, W. Houghton's two volumes on *British Fresh Water Fishes*, 1879, give a very interesting and accurate account of the subject. The same may be said of a handsome, illustrated work with the same title by Sir Herbert Maxwell, 1904, one of the Woburn Library Series.

F. G. Aflalo has also contributed a volume (on *British Salt-Water Fishes*, 1904) to the Woburn Library.

In 1918, Neal Green brought out his instructive work on the *Fisheries of the North Sea.*

The most important nineteenth-century French treatise on fishes in general is the extensive work of Cuvier and Valenciennes, published 1828–49, the *Histoire naturelle des Poissons*, 22 vols., Paris.

Ten years later there appeared the first portion of the celebrated *Catalogue of Fishes* in the British Museum, London, 1859–70, by A. Günther, who in 1880 also wrote a useful and practical handbook, an *Introduction to the Study of Fishes*, Edinburgh. Still later there appeared several noteworthy contributions to ichthyology, among them Eigenmann's *South American Fishes*, San Francisco, 1893, and Dean's *Fishes, Living and Fossil*, N.Y., 1895.

These treatises were followed by one of our most extensive systematic monographs, Jordan and Evermann's *Fishes of North and Middle America* in 4 vols., 1896–1900, Washington. Dr. David Starr Jordan, who is easily the best known authority on ichthyology in America if not in the world, is the author of many works on that subject, among them a semi-popular volume, *Fishes*, 1907, N.Y. This veteran ichthyologist's best known systematic monograph is his *Genera of Fishes* issued 1917–20 in four parts, each separately indexed. This 'contribution to the stability of scientific nomenclature' records the history, bibliography, synonymy, &c. of ichthyology from Linnaeus (1758) to 1920. Another standard work of reference by Dr. Jordan is his *Catalogue of the Fishes of Japan*, 1913.

It was Boulenger who contributed an excellent essay on fishes in general to vol. vii of the Cambridge Natural History series. Three American authors about this time also published books that deserve special mention here —Ward's *Marvels of Fish Life*, N.Y., 1912, and Goode and Bean's *Oceanic Ichthyology*, N.Y., 1915, Goode already (in 1888) having written on *American Fishes*, N.Y.

Another important, general treatise on deep-sea ichthyology is Murray and Hjort's *Depths of the Ocean*, 1912.

Of the remarkable types found in Oceania and neighboring waters D. S. Jordan and A. Seale described in 1906 *The Fishes of Samoa*; A. Günther *Die Fische der Südsee* (1873–1910), and D. S. Jordan and B. W. Evermann, *Fishes of the Hawaiian Islands*, 1905. The American titles are mostly U.S. Government publications.

Turning once more to works on foreign and fossil ichthyology we note Houghton's (1879) *Freshwater Fishes of Great Britain*, London; Siebold's (1863) *Die Süsswasserfische von Mitteleuropa*, Leipzig; Couch's *Fishes of Great Britain*; *Süsswasserfauna Deutschlands* of Brauer, 1909; Blanchard (1866), *Les Poissons des eaux douces de la France*, Paris, and W. Grote's *Süsswasserfische von Mittel-Europa*, Frankfurt, 1909.

Between 1836–57 appeared the first edition of W. Wright's monumental *Skandinaviens Fiskar*, followed in 1892–5 by an edition in English. This treatise is among the best yet written, a beautifully illustrated work on North Sea fishes.

In 1881 was also published an important work on Scandinavian pisces by W. Lilljeborg —*Sveriges och Norges fiskar*—in three volumes.

An outstanding treatise on the fishes of Finland, in fact the standard work on the subject, is Reuter and Mela's *Finlands Fiskar* (1883–93, 12 parts so far issued), with the text in both Swedish and English.

Still later (1892–5) is the excellent three-volume monograph of B. F. Fries *et al*, entitled *Skandinaviens Fiskar*.

Others are Day (1889), *Fishes*, in *Fauna of British India*; Hutton and Hector's (1872) *Fishes of New Zealand*, and a magnificent monograph in five volumes by Weber and Beaufort (1911–28) on the *Fishes of the Indo-Australian Archipelago*.

Of many works on fossil fishes, Agassiz (1833–44) wrote *Recherches sur les poissons fossiles*, 3 vols., and supplement, and Newberry (1890) *Paleozoic Fishes of North America*, Geological Survey, Wash. Sir Richard Owen, the famous paleontologist, wrote an informing *Descriptive Catalogue of Fossil Pisces in*

the Museum of the Royal College of Surgeons, 1854.

The celebrated Alphonse Guichenot contributed many useful treatises to his almost universal ichthyology, among them the *Reptiles and Fishes of Cuba*, 1843; of *Chile*, 1848; of *Abyssinia*, 1851, and of *Réunion* in 1862—all of these titles being listed in this Catalogue.

A useful, systematic, two-volume *Catalogue of the Fishes of South Africa* was published in 1927 by A. K. Barnard.

Much earlier, A. Valenciennes wrote on the fishes of South America, in the *Voyage dans l'Amérique meridionale*, 1835–47.

In 1870 J. C. Weber issued the second edition (amended by Kranz) of his small manual, *Die Fische Deutschlands u. der Schweiz*, illustrated by 67 colored plates.

The Pisces of Siebold's *Fauna Japonica* (1842–50) furnishes one of the best accounts of Japanese ichthyology, although in America D. S. Jordan's *Catalogue of the Fishes of Japan*, Tokyo, 1913, is the standard authority.

Achille Griffini published in 1911 a popular work on fishes, amphibia, and reptiles, well illustrated.

In 1916 appeared Prof. F. Supino's systematic *I pesci d'acqua dolce d'Italia*, illustrated by colored plates.

Of popular works on general ichthyology the Compiler recommends W. P. Pycraft's *Story of Fish-Life*, 1901.

For a full account of American *fish culture and protection* as well as of the uses of fish for food and other commercial purposes the literature supplied by the U.S. Department of Agriculture is recommended.

In Great Britain many volumes have been written on economic ichthyology, one of the popular titles being Bertram's *Harvest of the Sea*, London, 1865; another, McIntosh and Masterman's *British Marine Food Fishes*, 1897; still later a valuable monograph by J. T. Jenkins, *The Sea Fisheries*, 1920.

Probably the most important (English) source of nineteenth-century literature on fishes in general followed the London meeting in 1883 of the Great International Fisheries Exposition. In vol. iii, p. 1170, of the *Catalogue of the British Museum* (*Natural History*) is published most of the papers contributed to that meeting. The advanced student of New World ichthyology will look over with profit the list of papers by G. B. Goode and other American writers.

CHAPTER XVI

SELECTED TITLES FROM THE LITERATURE OF HERPETOLOGY AND AMPHIBIOLOGY.

Charles Owen—von Rosenhof—J. G. Schneider—J. D. Schoepf—Jacob Sturm—Lamouroux and Bory de Saint-Vincent—W. Swainson—V. Kollar—C. Girard—G. A. Boulenger—J. E. Gray—E. D. Cope—L. Stejneger—H. C. Bumpus—E. Coues—H. C. Yarrow—Hans Gadow—Lydekker—G. Tornier—J. Van Denburgh—Ditmars—Reese—J. E. Holbrook—D. Humphrey—S. P. Woodward—F. A. Lucas—von Zittel—De Kay—W. H. Smith—Suckley and Cooper—A. S. Woodward—Victoria County Histories—Westell—Geo. G. Scott—C. H. G. von Heyden—R. P. Lesson—Temminck and Schlegel—T. Bell—Guichenot—Geoffroy Saint-Hilaire—Vaillant and Grandidier—F. M. Fitzsimons—Nieden and Sternfeld—Siebenrock and Boettger—Dürigen—E. Schreiber—A. Günther—Ramon de la Sagra—J. E. Gray—J. L. G. Krefft—Gabriel Bibron—Bocourt and Duméril—J. B. Spix—L. G. Andersson—Baron Tschudi—W. L. Sclater—Patrick Russell—A. Aclogue—J. F. M. Réguis—L. Stejneger—Siebold—F. Mocquard—Rooy and van Kampen—L. Méhelÿ.

IT may here be noted that the term *amphibia* was originally employed by Linnaeus to denote the Class of the Animal Kingdom comprising crocodilia, lacertilia, tortoises, turtles, ophidia, salamanders, and frogs. Indeed, some editions of his *Systema Naturae* add to that list certain groups of fishes. Although this view has been greatly modified by later observers and the Compiler knows that Huxley and others insist upon the distinctness of the Class Amphibia, yet it is much more convenient in the present compilation to adopt the plan of Günther. In his celebrated *Catalogue* he treats amphibia as one of the four orders of Reptilia; accordingly the Compiler will regard the titles on Amphibia as a part of herpetologic literature. In fact they are so treated in many monographs.

Ancient and early medieval literature about reptiles—especially 'serpents'—seems bound up with accounts of animals in general, references to which have already been abundantly made. Most of these primitive discourses, especially on 'serpents', are largely mythical matter, as will be found in Charles Owen's *Essay on Snakes*, 1748.

An early writer was Antonio Vallisnieri whose *Istoria del Camaleonte Affricano, e de varj Animali d'Italia*, 1715, illustrated by 13 plates, furnishes excellent descriptions of a chameleon and other reptiles.

Roesel von Rosenhof's *Historia naturalis Ranarum*, with a preface by A. von Haller, and 24 plates, 1758, is generally regarded as an excellent piece of work and rated among the early classics of amphibiology.

To the same category belongs J. G. Schneider's *Naturgeschichte der Schildkröten*, 1783, and 2 colored plates, although J. D. Schoepf's *Historia Testudinum*, 1792, with 34 colored plates, adopts a more modern literary dress.

In 1799–1805 Jacob Sturm described and pictured German amphibia in his *Deutschlands Fauna*.

In 1828 Madame S. Lamouroux published her *Iconographie des Reptiles*, with text by Bory de Saint-Vincent.

W. Swainson made a study of monocardian animals (2 vols., 1838–9) in which the Reptiles of the World occupy a prominent place.

A useful account of amphibian life is given in V. Kollar's *Bildliche Naturgeschichte*, 1853–7.

At the outset, attention is again drawn to the many valuable systematic accounts of the reptiles and amphibians of the world in reports of Voyages and scientific Expeditions, both governmental and private. Many of these herpetological titles are noted below the major headings of Voyages in the Catalogue, and should not be forgotten by the research student. For example, a very elaborate account of American herpetology is given by C. Girard under *United States. Voyages, Wilkes Expedition*, 1845–76.

The chief scientific, i.e. systematic writers in English on reptiles and amphibia are G. A. Boulenger, J. E. Gray, and A. Günther of the British Museum, E. D. Cope and L. Stejneger of the Smithsonian Institution, and R. L. Ditmars of the New York Zoological Society. Their works (listed in the accompanying Catalogue) give a good account of the whole subject and should be consulted by all students of this group.

One may begin the modern list by mentioning the monographs of John E. Gray (with Sowerby and Lear), *Tortoises, Terrapins and Turtles*, folio, 1872, and L. Stejneger, *Herpetology of Porto Rico*, 200 ill., 1904. The batrachia and reptilia of the *Standard Natural History* (see Kingsley, J. S.), 1885, are amply discussed by H. C. Bumpus and E. D. Cope, and in *An Expedition to the Valley of the Great Salt Lake of Utah* by Baird and Girard. See under H. Stansbury, 1852.

A valuable contribution to mid-American herpetology (including amphibia) is furnished by H. C. Yarrow and E. Coues in the *Federal Report, Survey West of the Hundredth Meridian*, 1875.

Hans Gadow, *Amphibia* (*Cambridge Natural History*, vol. viii), 1901; Lydekker and others, *Amphibia*, London, 1912, and Dickerson's *The Frog Book*, 1906, N.Y., are semi-popular works of considerable importance. Valuable contributions to fossil amphibia (as a section of general paleontology) form part of H. R. Knipe's *Evolution in the Past*, London, 1912.

As has been pointed out, there are many works on general zoology that contain admirable essays on herpetology. One of these is Ehrenberg's *Symbolae Physicae* whose supplement (1899) has excellent, illustrated chapters on reptiles by G. Tornier.

In vol. v of *Occasional Papers*, California Academy of Sciences, 1897, J. Van Denburgh describes the reptilia of the Pacific Coast of North America.

Treatises and periodical publications on reptilian and amphibian forms are not as extensive as might from the interest of the subject be expected. However, recent field work on world species has occupied the attention both of systematic paleontologists and pure zoologists; there has in consequence been a great increase in the literary output dealing with prehistoric reptiles.

One of the noteworthy reviews of general amphibiology and herpetology is to be found in F. Werner's edition of *Brehm's Tierleben*, 1912, under *Lurche und Kriechtiere*.

A valuable author's excerpt from the *American Naturalist* (1925) is G. K. Noble's *Evolution and Dispersal of Frogs*.

One of the best early treatises on British reptiles is Bell's *History*, 1839.

Of early comprehensive monographs, that of Duméril and Bibron (*Erpétologie générale*, 1834–54, Paris) is to be especially recommended. Another celebrated work of very great local value is Fayrer's *Snakes of India*.

J. Verluys, on *Amphibia* (vol. i, *Handwörterb. d. Naturwiss.*, 1912), gives a good account of the subject; so does E. Perrier, in his *Traité de Zoologie*, vii, 1925, while O. Abel in *Die Stämme der Wirbeltiere*, 1919, deals scientifically with developmental herpetology and amphibiology as part of vertebrate zoology.

A very important contribution to the literature of modern herpetology is the work of Bronn, 1866, *Reptilia*, a section of his monumental *Klassen und Ordnungen des Thierreichs*. Of still greater value for advanced students are Boulenger's *Catalogue of the Reptiles in the British Museum, London*, 1889–96; Lydekker's companion volume (1890), *Catalogue of the*

Fossil Reptiles and Amphibia in the British Museum; E. D. Cope's *Crocodilians, Lizards and Snakes*, Washington, 1900, as well as his (brief) *Analytical Table of Genera of Snakes*, 1886.

Well written and dependable books of a more popular character are Ditmars' *Reptiles of the World*, N.Y., 1910 and 1927; the same author's *Reptile Book*, N.Y., 1914, and Reese's *Alligator and its Allies*, 1915. To these may be added S. W. Williston's *Water Reptiles of the Past and Present*, Chicago, 1914, and Boulenger's *Reptiles and Batrachians*, N.Y., 1915.

Among other (American) writers may be mentioned John Edwards Holbrook (1796–1871) who wrote a well-known *North American Herpetology*, &c., in 5 vols., with col. ill., 4to., Phila., 1842, and other treatises on (local) reptilia, such as David Humphrey's (1804–91) *Report on the Ichthyology and Herpetology of Massachusetts*, 1839.

Publications dealing with the extinct and fossil forms interesting to both zoologists and general readers, are A. S. Woodward's *Vertebrate Paleontology*, London, 1898; F. A. Lucas' *Animals before Man in North America*, N.Y., 1903, and K. A. von Zittel's *Text Book of Paleontology* (English translation by C. R. Eastman, 2 vols., N.Y., 1903).

Numerous examples of reptilian fossil deposits discovered in Europe are described in literature, a good example being the quarto volume of E. Fraas, Stuttgart, 1896, *Die Schwäbischen Trias-Saurier*. The British Museum publications, especially those of Richard Lydekker, elsewhere mentioned, furnish a complete study of fossil reptilian and amphibian world forms discovered prior to 1890.

Many of the local faunal histories of North America describe the reptiles and amphibia of a particular locality. Perhaps the most elaborate of these is found in De Kay's *Natural History of New York State*, 1842–4. Another, less valuable but furnishing a report on Mid-West American herpetology and amphibiology (in Ohio), is made by W. H. Smith.

In 1859–60 Suckley and Cooper published their reports, in three parts, of the fauna collected during 1853–60 in Washington and Oregon territories, Minnesota, Nebraska, Kansas, Utah, and California. Much of this valuable material was also utilized for other publications, listed in this Catalogue. Part III contains most of the zoology, of which J. G. Cooper describes the reptiles.

A small volume containing much information on vertebrate paleontology is A. Smith Woodward's *Guide to Fossil Reptiles, Amphibians and Fishes*, 1910.

The reptiles and amphibia of the British Isles are generously described in various treatises and manuals but especially in county publications and records of meetings (Dublin, Sheffield, *et al*) of the British Association for the Advancement of Science. As outstanding sources of information for the first of these see the *Victoria County Histories*. There is, however, in these local faunal accounts a large amount of duplication.

Several of the *Guides* to the British Museum (Natural History) deal with amphibia and reptiles in a scientific fashion. Among them is a volume, very useful to the advanced student, by Richard Lydekker, 1913.

A recent, small, popular work on British Reptiles and Amphibia is W. P. Westell's contribution to the *Abbey Nature Books*, (?) 1927.

For an up-to-date study of the biologic relations of reptiles and amphibia there is no better textbook than George G. Scott's *The Science of Biology*, 1930, in which the morphology, histology, phylogeny, physiology, classification, &c. of these sub-classes meet the wants of the advanced student.

At this juncture one may refer to G. A. Boulenger's well-known *Tailless Batrachians of Europe*, 1897, illustrated by 24 colored plates—one of the Ray Society publications.

The batrachians and reptiles of Malaysia are well described by G. A. Boulenger in Annandale and Robinson's *Fasciculi Malayenses*, 1903.

In 1832 R. P. Lesson inscribed the herpe-

tology records of a *Voyage aux Indes-Orientales*, a valuable addition to our knowledge of the subject.

In 1842 appeared the *Reptiles of the Voyage of the Beagle*, an admirable scientific treatise by T. Bell.

Among other early (and unimportant) contributions to herpetology is the little book by Baron Clermont, *A Guide to the Quadrupeds and Reptiles of Europe*, 1859.

A noteworthy contribution to the herpetology of North Africa was made by Guichenot in a *Voyage en Abyssinie*, 1847–51. The same author (with C. H. Jacquinot) described the reptiles and fishes of the voyages to the South Pole of the 'Astrolabe' and the 'Zelée', 1841–54.

As part of his several contributions to the monumental *Description de l'Égypte*, 1908–30, E. Geoffroy Saint-Hilaire wrote several sections on the reptilia of the Nile region.

The herpetology of Madagascar is well described by L. Vaillant and G. Grandidier in A. Grandidier's *Histoire physique*, 1875–1900, of that interesting island.

C. H. G. Heyden's *Atlas (1827) of the Reptiles of North Africa* forms part of the illustrations of E. Rüppell's *Reise*.

An excellent monograph on the *Snakes of South Africa* appeared in 1912 from the pen of that noted naturalist, F. W. Fitzsimons.

A quite recent review of the amphibia and reptiles of Central Africa will be found under the caption Adolf Friedrich of Mecklenburg, by F. Nieden and R. Sternfeld (1912).

The herpetology and amphibiology of the Nile region were well described and pictured in 1898 by John Anderson.

F. Siebenrock and O. Boettger give a good account of the amphibia and reptiles of Madagascar and East Africa in A. Voeltzkow's *Reise in Ostafrika*, in 1903–5.

P. N. Van Kampen describes the amphibia of the Indian archipelago, collected by Max Weber in 1890.

The amphibia and reptiles of Middle Europe are well described and depicted by Br. Dürigen under the caption *Deutschlands Amphibien und Reptilien*, 1897.

Another valuable and systematic treatise, but more comprehensive, is E. Schreiber's *Herpetologia Europaea*, 1875.

A notable (French) edition of G. A. Boulenger's work is *Les Batraciens et principalement ceux d'Europe*, 1910.

A good description of local South American amphibians and reptiles is also given by G. A. Boulenger in E. Whymper's *Travels amongst the Great Andes*, 1891.

The reptilia and amphibia of the Americas are well represented in literature. In addition to titles already quoted one of the best accounts of these Mexican and Central American classes is furnished by A. Günther in Godman and Salvin's *Biologia Centrali-Americana*, 1879.

A good account of Cuban reptilia is given in vol. iv of Ramon de la Sagra's *Historia física*, 1843. See, also, under the captions *United States* in the appended Catalogue, where many accounts of American reptilia and amphibia are given.

Of the rather sparse literature of *Australian* herpetological literature mention may be made of J. E. Gray's *Catalogue* of reptiles and amphibia to be found in Sir George Grey's *Journals*, published in 1841; also in his and A. Günther's reports on the same animals in the Voyage of the 'Erebus' and 'Terror'.

The reptiles and amphibia of Central Australia have been systematically dealt with in the *Report of W. A. Horn's Scientific Expedition*, 1896.

J. L. G. Krefft in 1869 published an admirable essay on the *Snakes of Australia*. A good account of the reptiles and amphibia of New South Wales is contained in the *Handbook* of a meeting of the British Association for the Advancement of Science at Sydney in 1914.

The reptiles of South America as known at the date of publication (1847) are well described by the naturalist-explorer Gabriel Bibron in his several expeditions, including the famous *Voyage dans l'Amérique méridionale* (several times referred to here), that of 'La Bonite', &c.

P. Brocchi has also (1882) published an *Étude des Batraciens de l'Amérique Centrale* in 4to.

An important paper on the reptiles and batrachia of Mexico was written in 1870 by Bocourt and Duméril as part of the *Mission scientifique au Mexique*. J. B. Spix wrote in 1824 several monographs on the batrachians and serpents of Brazil.

L. G. Andersson listed the reptiles and batrachians of southernmost South America in 1899–1907, collected by the Swedish Expedition to the lands about the Straits of Magellan.

The reptilia of Peru are pictured and described in Baron Tschudi's *Fauna Peruana*, 1844–6.

The reptilia and batrachia of India, Burma, and Ceylon are well described and depicted by G. A. Boulenger in the classic (Blanford's) *Fauna of British India*, 1888.

A reference list of the Reptiles and Batrachia in the (Calcutta) Indian Museum by W. L. Sclater will also be found very useful. In 1872 appeared the first edition of Sir Joseph Fayrer's classic *Thanatophidia*, an interesting account of the poisonous snakes of India.

In 1864, the Ray Society reprinted A. Günther's important *Reptiles of British India*.

More than half a century earlier Patrick Russell wrote two monographs, well-illustrated, 1796 and 1801, on *Indian Serpents*.

French amphibia and reptilia are well described in A. Aclogue's *Faune de France*, 1900.

A systematic account of the reptiles of Indo-China is given as *Decades Zoologiques* (1905–7) in the report of the *Mission Scientifique*, published at Hanöi.

The batrachians and fishes of Southern France have been described by J. F. M. Réguis in his *Essai sur l'histoire naturelle de la Provence*, &c., 1882.

The reptilian life of Japan is best described and pictured (in its modern aspect at least) by Siebold in his large and classic *Fauna Japonica*, and by L. Stejneger's *Herpetology of Japan and Adjacent Territory* (1907), the latter a profusely illustrated monograph of 577 pages.

The amphibia and reptiles of North Borneo have been fully described by F. Mocquard in Whitehead's *Exploration*, 1893, the same task having been undertaken by N. de Rooy and P. N. van Kampen for Wichmann's systematic travelogue, *Nova Guinea*, 1906.

A general report on Asiatic amphibia and reptiles was also furnished by L. Méhelÿ from collections made during Zichÿ's *Forschungsreise*, 1901.

The reptiles and amphibia of North China are partly described in Clark and Sowerby's report on the Clark Expedition of 1912.

In 1925 began a very important series, entitled *Beiträge zur Fauna sinica*, the first four parts of which are devoted to a study of Chinese reptiles.

A systematic work, part of Cornalia's *Fauna d'Italia*, is F. E. de Betta's *Rettili ed Anfibi*, 4to, 1874.

Still earlier (1777) Cetti wrote his *Anfibi e Pesci di Sardegna*.

A work previously mentioned is a small but useful and well-illustrated treatise, Achille Griffini's (first printing in 1911) *I pesci—gli anfibi—I rettili*, in which the essentials of universal herpetology are briefly discussed.

Along with other vertebrates, Bavarian amphibia are fully described in Reider and Hahn's *Fauna Boica*, 1831.

CHAPTER XVII

ORIENTAL LITERATURE ON VERTEBRATE ZOOLOGY — CODICES, PRINTED TREATISES, AND LITHOGRAMS IN PERSIAN, ARABIC, AND OTHER ISLAMIC LANGUAGES — SANSKRIT AND SINHALESE WRITINGS — CHINESE AND JAPANESE LITERATURE ON ZOOLOGY.

Zakariya Qazmini—Al-Jāhiz — Nizamu'd-din — Faras-nāma — 'Ilaju'l-fil — Damiri — Uthman Beg—Raja Rajeswar Rao—Doki Nandan—Baz-nama—Tuhfatu's-sa'idin—Tibb-i-aspān—Chinese books on Zoology—Japanese Zoological Literature.

REFERENCES have been made elsewhere in this volume to the rather extensive collections of Arabic, Persian, Sanskrit, Hindustani, Bengali, Sinhalese (in the form of palm-leaf codices or olas), Chinese and other oriental works on zoology in the McGill libraries. The notes and evaluations to be found in the appended *Catalogue raisonné* are intended to furnish some proof that the Far Eastern peoples were not indifferent to the study and attractions of natural history, and that while oriental literature on that subject is relatively small it does exist. From the roster of Persian, Arabic, and Hindustani manuscripts, lithograms, and printed books, collected for the Blacker and E.S.W. libraries during the Compiler's three years in India and Kashmir, he selects the following: *'Aja'ibul-makluqat* (Wonders of Creation) by Zakariya Qazmini, composed during the thirteenth century. A Hindustani translation from the Persian or Arabic. Treats of Cosmography and Natural Science, including General Zoology. Lucknow, 1912. Large 4to. Pp. 696. Illustrated in color.

Besides this (lithographed) copy, there are in the McGill libraries four other copies or editions of this the best known medieval Mohammedan work on zoology.

A very important and fundamental *Book on Animals* was written in Arabic by Al-Jāhiz in the ninth century from which quotations were made by subsequent Islamic writers, including Qazmini, and by some medieval Christian authors. See the annotation of this work in the appended Catalogue.

Aqlu'sh-shu'ur, by Nizamu'd-din, composed about 1873. In Hindi; naturalistic encyclopedia. Lucknow, 1914. Pp. 490.

Danish-nāma-i-Ala'i, by Avicenna, beginning eleventh century. Persian natural philosophy. Haydarabad, 1891. Pp. 7+137+176. (Rare publication.)

Faras-nāma, by Muhammad Abdu'l-lah, end of nineteenth century; in Hindustani; four books, on the horse.

Faras-nāma, a different version of the preceding work, in Hindustani, also in four books.

'Ilaju'l-fil, by the same writer; in Hindi; diseases of the elephant. Lucknow, 1912. Pp. 184.

'Ilaju'l-fil, also a different version of the same title, *supra*. Lucknow, 1899. Pp. 199.

Hayatu'l-haywan, by Damiri; written A. H. 1372, in Arabic; zoological encyclopedia. 2 vols. Tehran, 1868. No pagination. (Rare.)

Ilmu'l-haywanat, by Uthman Beg, in Arabic; modern treatise on zoology. Cairo (?), 1886. Pp. 775.

Tashrihu'l-faras, by Raja Rajeswar Rao of Haydarabad, in Hindustani; on breeds of horses. Lucknow, 1906.

Makhzan-i-ilaj-i-haywani, by Doki Nandan. in Hindustani; composed *ca.* 1899; Indian veterinary art; Meeruth, 1900. Pp. 137.

Zinatu'l-khayl, by Mahdi Hasan, about

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1835; versified treatise on horses, in Hindustani. Cawnpore, 1907. Pp. 220.

Faras-nama-i-Rangia, by Rangin Sa'adat Yar Khan of Delhi, died 1835. Versified tract on horses. Cawnpore, 1886. Pp. 24.

Sayd-gah-i-Shawkati (or *Baz-nama*), by Yar Muhammad Khan Shawkat, composed about A.D. 1883, in Hindustani. On falconry and birds. Rampur, 1884. Pp. 338.

Tuhfatu's-sa'idin, by Abid b. Husayn Ansari, 1870, in Hindustani, on the lawfulness of the flesh of different animals for food. Lucknow (?). 1870. Pp. 16.

An anonymous but well written rubricated Persian manuscript (*ca.* A.D. 1780)—is the *Baz-nāma*—on the diseases of the falcon and their treatment. In this short treatise a description of the birds is briefly given. This rare manuscript was discovered by W. Ivanow in Hyderabad.

A reference to the annotated Catalogue under *Faras-nāma* will furnish a fair account (manuscript, lithograms, prints) of the horse—favorite of Indian chieftains, especially of the Moslems—his varieties, his diseases with their medical and surgical treatment; excellent colored drawings, in Persian, Arabic, Hindi, &c.

A rare anonymous Hindustani manuscript (*Tibb-i-aspān*) gives further information on the same subject. Another, *Khayl-nama*, transcribed in 1829, also gives a description of equine varieties. A versified book of the horse, 12mo, red-and-black letter Persian manuscript, dated 1245, A. H., details the charms and sings the praises of that animal.

Still another manuscript poem in Persian (*Husami*) on the same subject, a fine sample of calligraphy, possesses some scientific value.

Two editions, 1873 and 1888 (Hindustani lithograms) on Animals and their diseases—*'Ilaju'l-baha'im*—furnish an account of Indian animal pathology and the treatment of faunal disease in general.

According to Dr. Resillac-Roese, Librarian of the Gest Chinese Research Library of McGill, there are comparatively few individual works on zoology in Chinese literature, as can be ascertained from the great Chinese Catalogue *Ssû k'u ch'uan she tsung mu*, chuan (chapter) 115, 116, tome IV, vol. 32, original edition, A.D. 1790. Nearly all the material on zoological subjects is found in encyclopedias, dictionaries of terms, some historical works, and gazetteers of provinces. Important western works on Chinese zoology will be found in Henri Cordier's *Bibliotheca Sinica*, vol. i, pp. 171–188, Paris, 1881.

Scientific works on zoology in Japanese before 1860 are quite rare. They are represented in the Blacker and E.S.W. Libraries mostly by artistic but not very reliable pictures of native faunae—birds in particular—with, in a few instances, descriptive text.

During the past fifty years, however, Japanese naturalists have published numerous treatises and periodicals on their own and general zoology quite equal to European and American productions.

Most of the latter titles appear in the appended Catalogue.

The Compiler, during a residence of two years in Ceylon, was able to collect and present to many libraries, the *Bibliotheca Osleriana* in particular, several hundred Olas, curiously bound manuscripts beautifully written in Sinhalese on prepared leaf-strips of the Talipot Palm. A number of these are monographs on zoological subjects, plainly though rudely illustrated. They are now deposited in the Blacker and E.S.W. Libraries of McGill, and are among the rarities of those collections. Altogether these leafy codices testify to the high state of civilization enjoyed by Buddhistic Ceylon during that intellectual darkness of Europe called the Middle Ages.

Dr. Andreas Nell, of Kandy, at the request of the Compiler, gave a full description and history of the Ola in the *Annals of Medicine* for 1929, while in the same periodical (1926, No. 8, pp. 435–55) the Compiler has furnished an account of Sinhalese literature in its relations to Medicine and Comparative Zoology.

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CHAPTER XVIII

PERIODICALS AND SERIALS ON VERTEBRATE ZOOLOGY.

Importance of Periodical Literature in Zoologic Study—Catalogue of Zoological Society—Zoological Record—Annals and Magazine of Natural History—Ornithological Periodicals, General and Local—London, Edinburgh, and Dublin Magazine—Publications of the various Royal Societies—The Linnean Societies and their periodicals—Proceedings of Local Naturalists' Societies and Clubs—The numerous Publications of French Sociétés des Sciences Naturelles—Spanish Zoologic Periodicals—Italian Periodicals on Zoology—German Periodicals issued by many Naturforschende Gesellschaften, Naturvereine, &c.—Swiss Periodicals on Vertebrate Zoology—American Magazines, Serials, and Reports issued by Societies and Institutions—The Transactions of British, American, French, and German Associations for the Advancement of Science—Proceedings of International Congresses and Conferences on Zoology and its Branches—Journals and Serials published in Holland, Belgium, Scandinavia, and Russia—Local Periodicals and Serials of the Old and New World—Canadian Periodicals—Local Journals on Zoology published in the United States, Middle and South America—African and East Indian Periodicals—Australasian Magazines, Serials, and Journals—Japanese Periodicals—Journals devoted to Vertebrate Anatomy, Development, Behaviour, University Societies and Departments, Embryology and other specialized Subjects.

ON several different pages of this Introduction the Compiler has, in a general way, spoken of the extreme importance of journals, magazines, serials, &c., in a study of faunal literature. These form, indeed, the very foundation of our knowledge of the subject. Much of the output constitutes a *record* of the work done in laboratories, museums, and other institutions, partly or wholly devoted to zoology; hence it is specially a contribution to systematic zoology and it also furnishes the latest and most scientific news in all departments of natural science. The number of these periodicals has enormously increased in late years and it is difficult for even the best equipped library to keep pace with them and to preserve full sets of their many volumes. The McGill libraries have, however, striven to make their collections as complete as possible, and it is now proposed to furnish a list (comparatively a small one) of the most important zoological periodicals out of the hundreds of those now on the tables and shelves of the McGill libraries.

The Compiler once more directs particular attention to the extremely valuable geographical catalogue of periodicals on zoology published in the *Catalogue of the Zoological Society*, the fifth and last edition having been issued in 1902. If that indispensable volume were brought up to date (1930) it would form a ready and unusually helpful source of information that has now to be culled, often with much labor, from such ponderous tomes as the *Union List of Serials*, whose very completeness as a record of *all* scientific periodicals makes it *for our purpose* difficult to manage. Even the Catalogue of the British Museum (Natural History) has for the student of vertebrate zoology the shortcomings of its many virtues in the inclusion of *every* natural history title.

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In an effort to supply this want the Compiler has attempted in the present volume to furnish, in the excellent form of the London Zoological Society's *Catalogue*, a roster to date of most periodicals and serials devoted partially or entirely to vertebrate zoology. The work that adequately supplements this list is, of course, the *Zoological Record*.

A few *current periodicals on vertebrate zoology*, especially avian contributions, are: *Ibis* (British); *Aquila* (Hungary); *Auk* (U.S.A.); *Beiträge zur Fortpflanzungsbiologie der Vögel* (Germany); *Berichte des Vereins Schlesischer Ornithologen* (Germany); *British Birds* (London); *Avicultural Magazine* (British); *Condor* (Pacific Coast, U.S.A.); *Australian Zoologist*; *Emu* (Australasia); *Flora og Fauna* (Scandinavia); *Novitates Zoologicae* (London and Tring); *Gerfaut* (Belgium); *Irish Naturalists' Journal*; *Scottish Naturalist*; *Zoological Record* (entire literature of zoology); *Journal of the Bombay Natural History Society*; *Stray Feathers* (India); *Journal für Ornithologie* (Germany); *Kócsag* (Hungarian) for Protection of Bird Life; *London Naturalist*; *Norsk Ornithologisk Tidsskrift* (Scandinavia); *Bulletin Zoological Society of Egypt*; *Oiseau*; *Revue Française d'Ornithologie* (France); *Der Zoologische Garten*; *Zoologischer Anzeiger*; *Ornithologische Monatsberichte* (Germany); *Aarsberetning* (and *Aarshefter*) of the Tromsö Museum (Norway); *Proceedings of the Academy of Natural Sciences of Philadelphia*; *Journal of Mammalogy*, Baltimore; *Proceedings of the Zoological Society* (London); *Revista do Museu Paulista* (Brazil); *Archivos* and *Revista do Museo Nacional*, Rio de Janeiro; *South African Journal of Natural History*; *Anales of the Museo Nacional de Historia Natural* (Buenos Aires); *El Hornero*, issued by the *Sociedad Ornitologica del Plata*; *South Australian Ornithologist*; *Uragus* (Siberia); and the *Wilson Bulletin* (U.S.A.).

More of a popular order are the *Ornithologische Beobacter* (Germany); *Bird-Notes and News* (Great Britain); *Aviculture* (U.S.A.); *Bird-Lore* (U.S.A.); the publications of the numerous Audubon Societies (U.S.A.), and the *East Africa and Uganda Natural History Society Bulletin*.

International Congresses and Conferences on zoology in general were interrupted by the World War but have since then resumed their meetings.

Several of these have been mentioned in connection with the publications to which they gave rise. Perhaps the chief meetings are those of the *Congrès Internationale de Zoologie*, whose first Session was held in Paris in 1889. Since then the sittings have occurred about every four years—in Moscow, Cambridge (England), Leipzig, London, Berlin, Geneva, Boston (Mass.), Cambridge (Mass.), &c., the ninth at Monaco in 1913. All sorts of *Comptes-Rendus*, *Règles*, *Verhandlungen*, &c. were issued after the various Sessions, for which consult the appended Catalogue.

The papers &c. of the *International Congress of Ornithology* (first held in 1885) generally appeared in its official organ, *Ornis* (q.v.). The last or Seventh (quadrennial) Session was held this year (1930) at Amsterdam.

The International Convention for the Protection of Birds, held in Budapest, 1907, is reviewed by Ottó Herman.

The Compiler has elsewhere spoken of the great value to the advanced student of the *Zoological Record*, now in its sixty-fifth volume, at the moment ably edited by W. L. Sclater. At least the sections that include vertebrates should be accessible to every one interested in that subject.

Another periodical essential to the studies of the specialist in vertebrate zoology is the famous *Archiv für Naturgeschichte*, 1835–date. Another is the *Archives de Biologie*, 1880–date. Still another is the *Annals and Magazine of Natural History* with its many mergers, changes of title, and editorial management since its first issue at Edinburgh in 1837. This journal is among the most important conservators of vertebrate faunal literature in any language.

The above four periodicals might well constitute a small but comprehensive reference

library that contains most of the information required by a student of modern vertebrate zoology.

Many of the publications that have from time to time been issued by British Colonial natural history societies, &c., are listed in the appended Catalogue. As an example one may quote the *Transactions and Proceedings of the New Zealand Institute*, a composite association founded in 1867. This important periodical has been issued regularly since 1869.

It seems hardly necessary to refer to the fact that access to the voluminous periodical literature of general biology—which of course includes general zoology—is essential to a serious study of vertebrates, and this truism is put forward as a reason for including them in this Catalogue.

Of what might be termed 'semi-avian' magazines, such as *Eggs and Stamps*, *The Naturalist* (devoted entirely to Ornithology and Geology), *The Weekly Oologist and Philatelist*, as well as others of a more ambitious type, the Compiler cannot give more than a passing notice, although some of them present papers of ornithological importance.

The numerous and important publications of the British Museum (Natural History) have been referred to many times in the present Introduction with a note that their titles are generally to be found in the appended Catalogue. The *History of the Collections* (1904–12), in 2 vols. and Appendix, should be in reach of every student of vertebrate zoology; nor should he despise the various Guides, Books and Maps, Instructions for Collectors, Economic Series, &c., intended in the first instance for visitors and amateurs. A complete list of these titles is published in the Cat. Br. Mus. (Nat Hist.) Supplement, pp. 130–40.

The biologic publications of Cambridge are more numerous than those of any other British University. The 46th *Annual Report of the Museums* (1912) gives an account of the natural history activities, that are still carried on.

Of many local British journals are the *Proceedings of the Cheltenham Natural Science Society* (founded 1877) that began its New Series in 1907; the *Journal of Economic Biology* (now of *Zoological Research*), 1905 to date, edited by W. E. Collinge; and the *Cotteswold Naturalists' Field Club*, typical of dozens of such useful associations in the British Isles, published 14 vols. of *Proceedings*, 1847–1903. Still older is the Devon and Cornwall Natural History Society, founded in 1838, and its publications.

A specialized but important British periodical is *Biometrika*, a journal for the statistical study of advanced biology, 5 vols. of which have appeared, 1901–7.

Among many other local British periodicals devoted to natural history, the majority published by county and other societies, is the Birmingham Natural History . . . Society whose annual report has been regularly issued (with few exceptions) since 1899. The *Bradford Scientific* (Association, founded 1875) *Journal* published its first number in 1904. The *Welsh Museum of Natural History*, Cardiff (founded 1863), later the *National Museum of Wales*, and the *Cardiff Naturalists' Society* both publish *Reports* and *Transactions*, the latter beginning about 1868.

The noteworthy *Essex Field Club*, previously mentioned, published a *Year Book and Calendar* (1905–14) and *Special Memoirs*, 1885–1910, including the *Birds of Essex* by M. Christy, pp. 8+302, 1 pl. and numerous text figs.

Mention has been made of the *Glasgow Naturalist*. This journal has been issued regularly since the appearance of its first volume in 1909.

The *Hampstead Scientific Society* (founded 1899) has issued Annual Reports since 1891, as well as other works on the natural history of the neighbourhood.

The *Hastings and East Sussex Naturalist* (1906–date), the organ of the *Hastings and St. Leonard's Natural History Society* (founded 1891), is among several useful publications of that local society.

One must not pass over the zoologic publica-

tions of the *Hull Museum*, whose *Publications*, Nos. 1–?85 (birds &c.), are of distinct value.

The periodicals and serials in the German language of local societies, museums, universities, and other institutions are more numerous than those of any other country. Lack of space does not allow the Compiler even to list here the chief of these, but the Catalogue does. The *Zoologische Sammlungen* issued by the (Berlin) Friedrich-Wilhelms-Universität is a good example, one of the first issues appearing in 1899.

The *Naturhistorischer Verein d. Preussichen Rheinlandes* &c. and the *Niederrheinische Gesellschaft f. Natur- und Heilkunde* have both issued their *Sitzungsberichte* since 1906.

The *Badischer Zoologischer Verein* (Karlsruhe) was founded in 1899, since which date it has regularly published *Mitteilungen*, amply illustrated.

The well-known *Neue Zoologische Gesellschaft* of Frankfurt a.-M. has published the *Zoologischer Beobachter*, 1906–11.

The *Thurgauische Naturforschende Gesellschaft* (founded in 1857), one of many similarly-named societies in German-speaking lands, has published regularly its *Mittheilungen* since 1857.

The very important *Gesellschaft Deutscher Naturforscher u. Aerzte*, several times mentioned in these pages as prolific of zoologic literature, has recently (1868–1930) issued several important *Fest-* and *Denkschriften* whose full titles will be found in the accompanying Catalogue. The *Oberhessiche Gesellschaft f. Natur- und Heilkunde* has published its well-known *Bericht* since 1849.

There are in the McGill libraries many 'separates' of zoological journals whose periodical status presents a difficulty. These are *Berichte*, *Annuals*, *Year Books*, *Annual Bulletins*, *Jahresberichte*, *Aarsberetning*, *Annuaires*, &c., generally printed as integral parts of a parent magazine and usually paged as it is. It often happens, however, that these excerpts are provided with a special cover, title-page, index, and, sometimes, with a preface entirely distinct from that of the periodicals from which they were extracted. In this guise the reprint is placed on the market and advertised as a distinct publication. When, in addition to these devices, the excerpt is separately paged, its claim to a place in such a compilation as this is much strengthened. The Compiler feels, therefore, that in the following Catalogue he may quite properly be criticized for accepting some of these abstracts and rejecting others of equal or of greater value.

It may not be out of place to refer, briefly, to a few of these yearly reviews. One of them is Moske's *Ornithologischer Jahresbericht über Pommern*, printed in the *Zeitschrift für Ornithologie*. This report appeared regularly for several years, and does not differ materially from similar contributions to journals that are quoted in booksellers' lists as *bona fide* periodicals.

In the case of annuals like the valuable *Report on Scottish Ornithology* (of which three issues were printed as separate publications and the remainder wholly as contributions to the pages, first of the *Annals of Scottish Natural History* and subsequently of the *Scottish Naturalist*) notes on the whole series are appended to the titles in the Catalogue.

Attention may also be drawn to the *Reports of the Movements and Occurrence of Birds in Scotland* by L. W. Hinxman and T. G. Laidlaw, that ran for many years in the *Annals of Scottish Natural History*. The E.S.W. Library of Ornithology has a series of these—1891–9 inclusive—issued separately but bearing the pagination of the journal in which they originally appeared.

A short but excellent example of an annual, or multiannual, periodical is the *Ornithologischer Bericht über Mecklenburg*, of which the tenth report (1914–20), much delayed by the Great War, was printed in the *Archiv. d. Fr. d. Naturges. in Meckl.*, 74, 1920.

Whatever their standing, annual reviews in the shape of bound 'separates' form handy volumes for the research student even when complete sets of the parent journals are also accessible. For example, the E.S.W. Library

has a 'run' (from the Reichenow-Cabanis collection) of the *Bericht über die Leistungen in der Naturgeschichte der Vögel*, and *Aves*, edited by Hartlaub, von Pelzeln, Hellmayr *et al*, covering the sixty-one years between 1846 and 1907. These reference volumes are reprints from the corresponding *Jahrgänge* of the *Archiv für Naturgeschichte*, and, in the shape indicated, save much time and labor otherwise expended in hunting references in the library copy of the general zoological periodical.

A minor but useful yearly review is the Koenig-Warthausen *Ornithologischer Jahresbericht*, one of the *Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg*, not separately paged, however.

Scandanavia, including Holland and Belgium, is prolific of natural history societies, museums, &c., most of which publish periodical literature on vertebrate zoology. Here one may mention, *inter alia*, the Bergens Museum whose *Skrifter*, in annual volumes, first appeared in 1878.

The *Annales de Zoologie de la Musée du Congo Belge*, published in Brussels since 1898, and the *Mémoires de la Musée Royale d'Histoire Naturelle de Belgique*, 1900 to date, are among the important zoological periodical literature of Belgium.

Of some importance are the publications of the *K. Norsk Frederiks Universitet*, issued in Christiania since 1895.

Reference has already been made to the *Dansk Naturhistorisk Forening*, founded at Copenhagen in 1838, as well as to the *Dansk Ornithologisk Forening* (founded in 1906) whose *Tidsskrift* has appeared regularly since 1906. In Denmark, also, is published the *K. Dansk Videnskabernes Selskab*, whose *Biologiske Meddelelser* has regularly appeared since 1917.

A valuable contribution to vertebrate zoology has for many years been the various periodicals and single monographs issued by the Gothenburg Museum.

The *Hollandsche Maatschappij* of Haarlem continues to publish several natural history periodicals and other works; the *Archives* since 1898; the *Natuurkundige Verhandelingen* (1900–30), &c.

The *Naturhistoriches Museum* and the *Zoologische Gesellschaft* are among the chief sources of periodical and other vertebrate zoological literature in Hamburg. Several of these have already been annotated in the appended Catalogue.

To the student familar with the Scandinavian languages, there are several periodical reviews accessible. For instance, in a McGill Library is a set of early separates: *Årsberättelser om Vetenskapernas framsteg, afgifne af Konigl. Vetenskaps-Academiens Embetsmän*, Stockholm, 1822–53. These admirable reports on bird life were contributed as follows: 1821–8, J. W. Dalman; 1829–31, S. Nilsson; 1832–6, B. F. Fries; 1837–50, C. J. Sundevall.

Although this is not the place to furnish a complete account of such serials, it is even more difficult to place reviews that appear irregularly or that cover an uneven period of years. Such a publication is R. Collett's helpful *Mindre Meddelelser vedrør Norges Fuglefauna i Aarene . . .*, issued in several sections as appendices of the Norse *Nyt. Mag. f. Naturv.* The first part comprises the years 1873–6, the second 1877–80, and the third the years 1881–92. Such serials, issued in sections and separately paged may, perhaps, be regarded as periodicals, but it was decided to omit them from this Catalogue.

Finally, for the English reader the best *annual* reviews of the regularly published sort are the *Zoological Record* and the *Ibis Index of Ornithological Literature* (1870 and onwards) by Sabin and Sclater, which for many years have furnished an admirable account of the literature.

In determining the status of a 'purely ornithological' periodical, it was decided (with some regret) to omit those journals that deal exclusively (or mostly) with *poultry*, *domestic pigeons*, *canaries*, and the *sporting* aspects of bird life. For this reason it was decided that such otherwise interesting journals as *The Homing Pigeon* (17 vols., 1905–22) and *Die*

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Zeitschrift für Brieftaubenkunde should be excluded. Poultry magazines and kindred by-products of scientific ornithology have an enormous periodical literature in many languages—particularly in English and German—scattered over the whole globe. The Compiler has gathered a list of nearly three hundred of these, and he has reason to believe that there are many more. Some of them are well illustrated and admirably conducted; and not infrequently they contain articles of decided merit, written by competent observers on subjects closely related to scientific ornithology. They occasionally discuss, for example, Mendelian problems, avian pathology and psychology, experimental aviculture, acclimatization, hybridism, &c.

Just what to do with such (generally annual) periodicals as *Bird Calendars*, *Taschenbücher*, *Kalender für Vogel-Freunde*, *Bird Years*, &c., is not easy to decide, but in view of the generous supply of magazines proper it was decided to pass them by with this brief mention.

Although it seems at first blush trivial to speak of it, yet who shall say that a century hence the 'airy nothings' in our zoological periodicals may not acquire a certain value—sociologic, perhaps—and afford a means of determining just what sort of people we were? At any rate, the Compiler records the issues of one of these comic publications, *The Auklet*. The first number has as its minor title, *Occasional Journal of Ornithological Minutiae*, Illustrated, Vol. 1, No. 1, 1920. Current. Anonymous. Privately printed. Washington, D.C. This amusing critique of men and things ornithological is well worth reading.

Although most of the periodicals, including the annuals and the irregularly published bulletins edited by the American Audubon Societies, have been listed in this Catalogue (and many of them are genuine contributions to the progress of scientific ornithology), yet the Compiler has been obliged to omit a few titles of this character because of his inability to obtain the data necessary for annotation. In this connection it is hoped that, after a proper interval, a supplement to or a second edition of this Catalogue will be written, perhaps by another hand, in which this and other defects may be remedied.

Of British periodicals devoted entirely or partially to natural history the names are practically legion, and the Compiler could not if he would mention in this place more than a small fraction of them. However, among the oldest of the general journals is the famous *London, Edinburgh, and Dublin Magazine*, first published in 1728, which with several changes of major and minor titles still continues its useful activities.

It may be well to repeat at this time that the appended Catalogue has a fairly good list (and the McGill libraries a corresponding supply) of those numerous British and Colonial periodicals and serials whose titles begin with the adjective *Royal*; many of them publish valuable articles on vertebrate zoology. Of course the publications of the famous *Royal Society of London* (founded in 1660) is the forerunner of them all.

A chain of Linnean societies was early forged in all countries favorable to such projects. Their publications are of outstanding interest to naturalists. Among them, and perhaps the most important, are the *Transactions*, *Journal*, &c., of the Linnean Society of London, founded in 1788; the *Proceedings* of the Linnean Society of New South Wales, 1877 to date; *Transactions* of the New York Linnean Society; the *Bulletin* and *Actes* of the *Société Linnéenne de Bordeaux*, founded in 1818, and the *Annales de la Société Linnéenne de Lyons*, founded in 1822, the first volume of which was published in 1826–36.

French-speaking countries have been provident of periodicals largely devoted to natural history. In addition to those already mentioned one might add such publications as the *Bulletin scientifique de la France et de la Belgique* that, with its varying titles, has been published regularly since 1869.

Of departmental and sectional periodicals a *Bulletin* of the *Société des Sciences Naturelles*

de l'Ouest de la France (founded in 1891) has appeared regularly since its foundation.

During the period of its publication, 1872–7, Gervais's *Journal de Zoologie*, Paris, was a valuable periodical and its six volumes still stand as a work of reference.

Of the many natural history publications by Museums in France those of the *Musée d'Histoire Naturelle de Marseilles*, founded in 1819, is a good example, especially the *Travaux du Laboratoire de Zoologie Marine*, and the *Annales*, the latter issued continuously since 1883. Of course the numerous and important periodical publications of the Paris *Muséum d'Histoire Naturelle* quite overshadow all other French serials, including the *Bulletin* and *Mémoires* of the *Société Zoologique de France*. The *Annales* of the former first appeared in 1802, the *Bulletin* of the latter in 1876.

During its period of publication (1849–79) the *Revue et Magasin de Zoologie pure et appliquée* was a notable French periodical and the same can still be said of the *Revue Suisse de Zoologie*, whose first volume was published at Geneva in 1893.

Another local French society, the *Société des Amis des Sciences Naturelles*, founded in 1865, has continuously issued a creditable *Bulletin* since 1866.

The Iberian Peninsula furnishes quite a few periodicals in part or wholly given over to natural history. One of these is the *Memorias* published by the Madrid *Real Academia de Ciencias exactas* (founded in 1847); another the *Boletin* of the *R. Sociedad Española de Historia Natural* (founded in 1871) first issued in 1901.

Several Italian natural history periodicals have already been mentioned; one of much importance is the *Atti della Società Italiana di Scienze Naturali* issued from Milan since 1859.

Taking them at random, of a few of the more prominent German periodicals in whose volumes will be found many valuable and original essays and articles on vertebrate zoology one may mention the *Biologische Zentralblatt*, founded by Prof. J. Rosenthal, Erlangen, 1881 to date. The *Abhandlungen* of the Dresden *Naturwiss. Gesellschaft Isis* have been published since 1860, the society itself having been founded in 1833.

An excellent example of the numerous array of local German journals is the *Jahresbericht* of the *Naturwiss. Verein von Elberfelde* founded in 1846. More important are the several periodicals (*Abhandlungen*, *Berichte*, *Kataloge*, &c.) issued regularly by the *Senckenbergische Naturforschende Gesellschaft*, a vigorous society founded in 1817.

In 1823 was founded the popular *Görlitzer Naturforsch. Gesellschaft*, since which date the society has regularly published its *Abhandlungen*, &c. The *Mittheilungen* of the *Greifswald Naturwiss. Verein* (founded in 1866) has been regularly issued since 1869. The *Halle Verein* (founded in 1848) is still more productive of zoological literature issued under various titles, especially since 1853; in the same town was published *Der Naturforscher*, 1774–1804.

Still another active society is the *Mecklenburg. Verein der Freunde der Naturgeschichte* whose *Archiv* have been regularly published since its foundation in 1847.

A most important journal devoted to zoology is that issued, among many others, by the *Deutsche Zoologische Gesellschaft* since 1896—*Das Tierreich*.

A rather important German periodical is *Kosmos*, devoted in particular to vertebrate embryology. A complete set (1877–86) of 19 volumes is in the Blacker Library.

The important *Verhandlungen*, as well as the official *Anzeiger*, organ of the *Deutsche Zoologische Gesellschaft*, has been issued since 1891 and 1890 respectively.

The organs of the numerous natural history societies—mostly in Central Germany—whose titles include the name *Naturforschender Verein* are catalogued, as a rule, under the names of the towns or provinces to which they belong. Some of them are quite important.

There are few of the numerous general zoological German periodicals more valuable to the advanced student than the *Zeitschrift f.*

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Wissenschaftliche Zoologie, founded by C. T. von Siebold in 1849 and since regularly continued.

Of the numerous French and Swiss journals devoted to natural history, many of them issued by local museums and societies, a few have already been mentioned. Practically all the important serials and journals of this class find a place in the Catalogue. The *Archives de Zoologie expérimentale et générale* (of great value to the student) has been regularly issued in Paris since 1872, the 66th volume bearing date 1927. The *Comptes Rendus* of the *Ass. Française pour l'Avancement des Sciences* (already mentioned) reached its (annual) 54th volume in 1930. As in the case of corresponding Associations elsewhere in the world of Science the society has held meetings in almost every part of the great Empire included in its sphere of action.

By the way, few there are that know the forerunner of our own A.A.A.S.—The Association of American Geologists, founded in 1840.

At Bordeaux was first published in 1895 the *Procès-Verbaux* of the *Société des Sciences Physiques et Naturelles.*

The *Bulletin* of the *Société Vaudoise des Sciences Naturelles* (founded in 1815) has appeared promptly since 1842.

The South European countries supply a fair amount of periodical literature dealing with vertebrate zoology. The Budapest *Magyar Nemzeti Múzeum* published, *inter alia*, *Die Vögel Ungarns* (1899–1903) by G. Madarász, while the *Magyar Tudományos Akadémia* (from 1864 onwards) issued treaties of like character. The *Academia Română* (founded in 1866) has published various zoological papers from time to time.

The long-established *Musée d'Histoire Naturelle* of Geneva has published a number of serials and periodicals, among them several Catalogues of its zoologic collections.

Local natural history societies, museums, universities, and other institutions, with their corresponding publications, are almost as numerous in America as they are in Europe. At this time there is space in this Introduction to list only a few of these in addition to those already mentioned elsewhere. Among them are the important *Journal* and *Proceedings of the Academy of Natural Sciences of Philadelphia.* An *Index to Scientific Contents . . . 1812–1912* was published in 1913.

The New York State Museum dates from 1845 and has published *Annual Reports* since 1848, a *Bulletin* since 1887, and *Memoirs* since 1889.

Notre Dame University (Indiana) has issued the bimonthly *American Midland Naturalist* since 1909.

The (New York) American Museum of Natural History, one of the foremost of New World institutions, continues to publish important and numerous serials and periodicals, details of which will be found in the appended Catalogue.

The publications of the University of California on Zoology began in 1902, and have regularly been issued since that date.

Volumes of the important *Biological Bulletin* of the (Wood's Hole, Mass.) Marine Biological Laboratory have been published continuously since 1899.

The chief Hawaiian natural history activity, the *Bernice Pauahi Bishop Museum* (founded 1889) &c. at Honolulu, has issued excellent *Occasional Papers* (1899–1930) and *Memoirs* (1899–1930).

Further mention must be made of the *Illinois Natural History Survey* (established in 1918 as one of the State University functions) whose *Bulletin* has been regularly issued since its creation.

The *Bulletin* of *Iowa State University Laboratories of Natural History* and its continuations have been published in yearly volumes since 1888.

The *University of Colorado Studies* (vol. i, 1903) as well as the *Bulletin* (vol. i, 1900), with contributions on vertebrate zoology, are published at Boulder, Colo.

The *Brooklyn* (N.Y.) *Institute of Arts and Sciences* (founded 1824) is a large and influential combination of various departments of

natural history. Prominent among its publications are its *Cold Spring Harbor Monographs* (1903–30); *Memoirs of Nat. Sciences* (1904); the *Children's Museum News*, issued under different titles since 1902; and the *Brooklyn Museum Quarterly* (1914–30); &c.

Of the many zoological periodicals issued by Harvard University those of the *Museum of Comparative Anatomy* (already mentioned) are to be kept in mind.

The Departmental publications of the Canadian Government and its departments of Agriculture, Mines, Marine and Fisheries, &c., as well as of the several Surveys furnish a goodly array of zoologic literature, all of which will be found in the present Catalogue.

As before intimated, the Carnegie Institute (Pittsburg), founded 1895, has issued since 1898 valuable *Publications of the Carnegie Museum*, while the Carnegie Institution of Washington (founded 1902) began to publish in 1903 a *Year Book* and now numbers about 500 *Publications* (1902 to date), many with papers of great value to the student of zoology.

The *Ohio Naturalist*, published at Columbus, official organ of the Ohio State University (founded 1870), has been issued at regular intervals since 1900.

The American Academy of Arts and Sciences (founded in 1780) has continued its first volume of *Memoirs* since 1780, its *Proceedings* since 1846. The *American Journal* (Silliman's) has had an honorable career since the first issue in 1818.

Among the many publications of local American natural history societies is the serial *Pacific Coast Avifauna* (1900–30) dealing chiefly with bird life of that region and issued under the auspices of the very active Cooper Ornithological Club of California (founded in 1893).

Partaking largely of what may better be listed as a Serial is that admirable periodical described in the appended Catalogue under the ponderous caption *United States Department of Agriculture; Biological Survey Division; North American Fauna*, 1889 to date. These separately-paged memoirs are (when treating of vertebrate zoology) annotated under individual headings in the present Catalogue. The Biological Survey also issues a separately-paged *Bulletin* of great scientific interest and value, 1889–date.

Attention has already been drawn to the importance of the periodical literature issued by the U.S. National Museum—its *Annual Report* (1884 to date); *Bulletin* (1875 to date); *Proceedings* (1879 to date); and its *Special Bulletin* (1892 to date).

In Europe scientific societies of this character, as well as their numerous publications, are much more prolific than in the New World, and it has not been possible to do more than mention a small fraction of them. A typical example is the *Allgemeine Schweizerische Gesellschaft*, &c., whose *Verhandlungen* was first issued in 1817. With several other publications it has been continued ever since.

Our limited space does not permit of more than a mention of a few of the numerous *local* North American periodicals devoted to zoology, but as an example of these the valuable *Proceedings* of the Portland (Maine) Society of Natural History (founded in 1843) has been continuously published since 1869.

Canada is well represented by natural history periodicals, listed in the Catalogue, one of which is the *Canadian Naturalist* first published as the organ of the Natural History Society of Montreal (founded 1827, now defunct) in 1857. Another of similar name, *Le Naturaliste Canadien*, was edited by the Abbé L. Provancher, 1869–91, afterwards by the Abbé V. A. Huard.

The Ottawa Field-Naturalist's Club, founded in 1879, has published since that date its *Transactions* (1880–7), continued as the *Ottawa Naturalist*.

Toronto University (founded in 1827) issues a valuable series of natural science periodicals, among them a *Biological Series*, first edited by Ramsay Wright, 1898 to date.

Several South American natural history museums and societies (with their publica-

tions) have already been noted. Among these is the Museu Goeldi (Paraense) de Historia Naturel, founded in 1867, whose *Boletim* was first published at Parà in 1894.

The *Revista* issued by the *Museo de La Plata* (founded in 1877) since 1890, and the *Anales* since 1891, should not be passed over.

To the roster of American publications on zoology may be added the periodicals of the Boston Society of Natural History—*Journal*, *Memoirs*, *Proceedings*, &c., that first appeared in 1837. It has since published many fundamental papers on vertebrate zoology. Sets of all these serials are on the shelves of the McGill libraries.

Another notable American society that has regularly issued its *Journal* since its foundation in 1870 is the Cincinnati Society of Natural History.

An important though popular magazine is *Forest and Stream*, New York, in which, since its first publication in 1874, have appeared many serious papers on vertebrate zoology.

A more recent source of vertebrate literature are the publications (various *Series* especially) of the Field Museum of Natural History, founded in 1893 at Chicago.

An American periodical, valuable for the research student, is Whitman's *Journal of Morphology*, first published in 1887. Of even greater value is Gegenbaur's *Morphologisches Jahrbuch*, issued regularly since 1876.

Another German periodical is the *Zeitschrift für Morphologie und Anthropologie*, 1899–1930.

In the Philippine Islands the Government Science Bureau is the one source of periodicals interesting to the zoologist. The *Philippine Journal of Science*, edited and first regularly issued by P. C. Freer in 1906 and now under the care of R. C. McGregor, is a periodical of great scientific value.

The *Annals of the Durban Museum* (founded in 1885) has been regularly issued since 1914; a *General Guide to the Museum* was published in 1916.

The *Journal of the East Africa and Uganda Natural History Society* (founded 1909) has been published in London regularly since 1910.

The *Annals* as well as the *Reports* of the Pretoria Museum and Zoological Gardens (founded in 1892), issued since 1908, deserves mention. Another African periodical of importance is the *Revue Zoologique Africaine*, Bruxelles, 1911 to date.

Of Dutch journals the periodicals of the Amsterdam *Koninklijk Zoologisch Genootschap* (1838) and of the *Kon. Akademie van Wetenschappen* (1851) are very important. They are noted in the appended Catalogue.

Australia and New Zealand have contributed quite a few interesting periodicals to vertebrate zoology, some of which have already been mentioned.

The Queensland Museum began publishing a serial—*Memoirs*—in 1912, which has been regularly issued since.

The Canterbury Museum (Christchurch, N.Z.) has been issuing *Guides* since 1900 and *Records* since 1907, dealing with the flora and fauna of the Dominion.

In 1896 was first issued the *Geelong Naturalist* and *The Wombat*, now consolidated under the first-named periodical. It is the flourishing organ of the Geelong (Victoria, Australia) Naturalists' Field Club, founded in 1880.

In 1882 was founded the Australasian Association for the Advancement of Science whose (Annual) *Reports* have appeared regularly since that date.

Of Northern European countries Finland contributes several excellent periodicals, the chief of which is, perhaps, the *Acta Societatis pro Fauna et Flora Fennica*, Helsingfors, regularly issued since 1875.

The Far East—British India, Ceylon, Dutch East Indies, Indo-China, Malaysia, Japan, &c.—is the source of many activities furnishing periodicals of interest to the vertebrate zoologist. One of the most prolific of these is the (Calcutta) Indian Museum already mentioned. Its *Memoirs* (separately paged papers) and *Records*, each begun in 1907, are important

serials, while *Guides*, *Catalogues*, and *Lists* continue to be published.

Among the issues of the Ceylon Government is the *Annual Report of the Marine Biologist* (1909–30). A famous Government institution, the Colombo (Ceylon) Museum, founded in 1875, not only issues the usual *Guides*, *Reports*, and *Memoirs* but sponsors the well-known *Spolia Zeylanica*, vol. I of which was published in 1903.

The Museums Department of the Federated Malay States has been publishing regularly an illustrated *Journal*, from Kuala Lumpur, since 1905 and an *Annual Report* since 1911.

Of voluminous Russian periodical literature, among the most important are the publications of the *Société Imperiale des Naturalistes*, Moscow, founded in 1805 which, with several vicissitudes of name and dates of publication, has been issuing *Mémoires*, *Bulletins*, &c. since 1809.

Of periodicals important for students of Far Eastern zoology, none is of greater value than the *Journal of the Bombay Natural History Society*, issued regularly since 1886, and, as mentioned, the publications of the various *Royal Asiatic Societies*, mostly branches of the parent London Society.

Several Australasian periodicals devoted to natural history have already been mentioned, and many more are on the roster of the Catalogue. An important example is the *Journal and Magazine of the Field Naturalists' Club of Victoria* (founded in 1880) issued since 1884, while the *Emu*, organ of the Royal Australasian Ornithologists' Union, has been regularly published for many years.

Among University institutions devoted to natural history and very numerous in the United States, one may mention the Illinois State Laboratory of Natural History, founded in 1862, whose *Bulletin* has been issued since 1876.

Another typical example of a local American society issuing praiseworthy periodical literature is the Wisconsin Natural History Society, founded in 1857, that published its *Bericht*, first in 1871; *Bulletin and Proceedings* since 1885, and *Occasional Papers*, 1889–96.

As already noticed, Italian scientific societies were among the earliest foundations, and among the first to issue their own periodicals and serials. One of these, the *Reale Istituto di Studi Superiori* of Florence, was organized in the fourteenth century, although its natural history *Pubblicazioni* were not begun, as separate memoirs, until 1877.

CHAPTER XIX

UNIQUE AND RARE PRINTED BOOKS, MANUSCRIPTS, AND DRAWINGS IN THE ZOOLOGICAL LIBRARIES OF McGILL UNIVERSITY.

Autograph letters—The Woodward, Darwin, Bowdler Sharpe, Elliott Coues, Sherborn, Robt. Ridgway, Brewster, Casey Wood, R. Macgregor, and other Collections—Original Drawings and Manuscripts—Rabié—Wm. Lewin—Feather Book of Minaggio—James Forbes—F. W. Frohawk—Ronald Green—John Gould—Hayes Family—Keulemans—Joseph Wolf—Samuel Howitt—H. W. Weir—A. Machien—F. W. Surtees—E. A. Wilson—F. J. Shore—W. E. Powell—Karl Plath—E. Neale—R. Dias—W. R. Fisher—G. M. Henry—John Duncan—W. J. Belcher—The Taylor White Collection of water-colors—Van Huysum—C. Collins—P. Paillou—E. Albin—G. D. Ehret—G. Webster—Lady Elizabeth Gwillim—P. H. Gosse—John Walcott—J. Gundlach—H. Grönvold—Samuel Pepys' copy of Willughby's *Ornithologia*—Rare and unique zoological books—G. Germano—J. J. Audubon—Elliott Coues—Sir W. Jardine—John Latham—Wm. Turner—J. Lemoine—J. P. A. Leisler—Jas. Backhouse—L. P. Vieillot—Unique Persian Codices and Printed works on Zoology—Original manuscripts—G. A. Borelli—Antoine Fée—I. G. Saint-Hilaire—Dame Juliana Berners—Jerdon and Blyth—Pliny the Second—Bewick Chapbooks—Alex. Wilson—Rabanus Maurus—1508 edition of Oppian—Merrem's *Beyträge*—Flamen's copper plates—Jan van de Straet's book on Venery—Siebold's *Fauna Japonica*—John Gould's Birds in manuscript—Jo. Ursino—Martin Saint-Ange and his *Traité élémentaire*, 1834–40—The very rare *Storia naturale* of Eugenio Bettoni—Balthasar Monconys' *Journal des Voyages*, 1665–6—Schonevelde's North European Ichthyology—Barthomaeus Anglicus—Paul Barthez—Sir Joseph Banks' manuscript—Leisler—Milne Edward's Library rarities—Rare works of Prince Bonaparte—Martin Saint-Ange—Monconys' Journal—Father Bougeant—Borkhausen's *Teutsche Ornithologie*—A rare Buffon.

EVERY large library gathers in the course of time a number of literary treasures that vary in number and quality with the enthusiasm, collecting spirit, and funds at the disposal of the librarian or his advisory bodies. In the case of McGill the zoological collections not only have acquired their share of these rarities but have also extended their acquisitions to rare and unique items not generally considered in University quarters as related to library activities. The descriptions that follow are not intended to glorify the McGill acquisitions but to furnish the student with the characters of unusual titles accumulated by every large library of the present kind.

In the category of *unica* is a collection of letters of naturalists. These are regarded by the Librarian and the Compiler as of importance because of the character of the subjects generally discussed in them and because of the light thrown on the scientific life and character of the writers, their work, their opinions, and their peculiarities. A genuine history of the progress of vertebrate zoology cannot be written unless one is acquainted more or less intimately with the working methods and daily doings of the makers of that history.

By purchase and gift the Blacker and E.S.W. libraries have in the course of ten years or more collected over 25,000 letters and

unpublished manuscripts written by nearly every prominent writer on zoological subjects from the seventeenth to the twentieth centuries. Chief among these are the Woodward (British Museum), Bowdler Sharpe, Elliott Coues, Sherborn, Robt. Ridgway, Brewster, McGregor, and Casey Wood collections. This assemblage of autograph material, alphabetically arranged and stored in fireproof containers, is, very naturally, accessible only to responsible and advanced students of zoology. *Much of it cannot be published now*, but most of it has a direct and important bearing on the history of zoology. Moreover, the Compiler believes that the future historian of natural science and its builders will find a mine of information in these more or less personal records.

Original drawings—mostly illustrations for zoological works already published—by artists more or less famous in the annals of natural history are fairly well represented in the McGill libraries. Unfortunately the collection is weak in the works of American artists; it lacks original examples of Audubon, for instance; but the Compiler hopes to remedy that defect in the near future. A few of the more important acquisitions in this line, taken at random, will now be mentioned.

At the instance of Dr. Alex. Wetmore, the Blacker Library acquired recently four folio volumes of unpublished aquarelles, with manuscript descriptions and index, by de Rabié, of the *Histoire Naturelle de St. Domingo*. These important *americana* were painted from nature by a French artist in the West Indies between 1767 and 1784, and consist of colored drawings of 59 species of birds, 75 of fishes, reptiles, and crustaceae, as well as 127 sheets depicting several hundred other natural history objects found in an important West Indian island. Dr. Wetmore has made the avian portion of this collection the basis of an illustrated paper in the *Auk*, Oct., 1930.

The Blacker Library has many original drawings by the well-known eighteenth-century artist-author, William Lewin. Among them is a portfolio of water-colors (made in 1785) of British bird eggs painted from the Portland Museum collection, being 90 original drawings, depicting 146 eggs, on thick cartridge paper, with title, descriptions, and index in Lewin's handwriting, 4to (probably unique). The figures correspond mainly with the plates in his *British Birds*, but seem to have been executed with greater care and were doubtless painted before 1786, as the contents of the Portland Museum were sold in April of that year.

Probably the most valuable of the unique zoological items in the McGill General Library is the Feather Book of Dionisio Minaggio, an official of the Court of Milan. Its curious title is dated 1618, thus making the author-artist a contemporary of Shakespeare. The book itself, with a reproduction of one of the curious feather-made pictures, is described by the Compiler in *Ibis*, p. 731, 1927. It is a huge folio, metal-clasped and bossed, $19 \times 12\frac{1}{2}$ inches, five inches thick, and containing 156 pictures of various objects—largely birds. The scientific importance of this collection lies chiefly in the fact that the birds depicted are as much as possible the bird-skins themselves with their original claws and mandibles! Among them we find well preserved specimens of song-birds, wading birds, birds of prey, &c.

The date of their preparation indicates that they are, in all probability, the oldest collection of bird skins known to ornithologists. Most of the examples have their vernacular names attached. This extremely important, well-preserved and unique collection will undoubtly be further examined and reported upon by a systematic ornithologist.

An interesting portfolio with some historical value is a collection of 54 sheets—30 figures of Indian birds; 16 of eggs; 12 of oriental serpents and other vertebrates—for illustrating James Forbes (1749–1819) *Oriental Memoirs*, 1813. The drawings were made in India by the author-artist about 1760–1813.

Of the younger school of animal painters Ronald Green, born in 1892, at Rainham,

(Last line) Ma[illegible]chein.

Kent, has made a name for himself. He has illustrated Pycraft's *Flight of Birds* and made many other drawings for well-known publications. The Blacker and E.S.W. libraries have representative collections of his paintings.

It is not generally known that John Gould (assisted by Mrs. Gould) drew some of the bird portraits for his celebrated *Birds of Australia*, yet the Blacker Library possesses among its most valued drawings 22 water-colors, most of which were used for the purpose just indicated. The notes on the margins of the drawings (made between 1831–6) are in the handwriting of Mrs. Gould.

Both the Hayes and the Hayes families of animal portrait painters are represented in the Blacker and E.S.W. libraries.

Of the former, Charles Hayes is least known. He was, however, the son of the famous William Hayes. *Vide infra.* His works are represented in the E.S.W. Library by a portfolio of 50 well-executed sheets of original drawings of birds, without descriptive matter.

William Hayes (1729–99) is best known as the artist who supplied the admirable illustrations of the *Portraits of Birds . . . at Osterley Park.* He drew these and many other paintings both alone and in collaboration with other members of his family. A portfolio of 49 colored paintings, from the library of Lord Willoughby de Broke, now in the Blacker collection, made in conjunction with A. Hayes, were drawn between 1779 and 1789.

Original sketches and water-color drawings of the celebrated animal painter John G. Keulemans (1842–1912), born in Rotterdam but domiciled in England, are well represented in the McGill—mostly Blacker—collections. Many of the original aquarelles, sketches, and colored lithograms intended to illustrate Sir Walter Buller's *Birds of New Zealand*, all of the original water-color drawings (not colored lithograms) for St. John Mivart's *Canidae*, and a portfolio of selected drawings made to illustrate papers in *Ibis*, *Proceedings of the Zoological Society*, and many other periodicals and treatises are among the treasures of the McGill collections. A unique item by this artist is a small series of oil portraits on glass of birds, painted for his friend Bowdler Sharpe, also in the Blacker Library. Altogether Keulemans was acknowledged to be the best portrait painter of birds for illustration during the last three decades of the nineteenth century.

One of the best known of British zoological illustrator-artists is F. W. Frohawk. The Blacker Library has several of his painstaking and beautiful drawings.

Among the pictured treasures of the Blacker Library are 95 original charcoal drawings, 79 of which were used to reproduce the lithographs of D. G. Elliot's beautiful *Phasianidae.* The remaining sixteen were made for the same purpose but were never published. These unique originals were made by Josef (or Josep) Wolf (1820–99), a famous animal illustrator of German birth who came to London at the age of 28 and for the remainder of his long life was employed as an illustrator by Robert Gray, John Gould, and numerous other authors who accorded him first rank as a producer of animal portraits.

A representative but small assemblage of original drawings on 26 plates—some of the figures being unfinished—is from the brush of Samuel Howitt (1765–1822). Probably by a member of the same family but of later date (*ca.* 1840) is an excellent collection of 400 drawings in color of British birds' eggs, with descriptive MS. text and both vernacular and systematic names—evidently prepared for publication.

Another artist-illustrator of books and papers on animal life is H. W. Weir (1824–1906). In the Blacker Library is a most interesting collection of 90 spirited, original, pen and pencil drawings depicting various faunal species, mostly birds, signed and dated 1869–1901.

A collection of considerable historical and scientific value is shown by the 453 well-executed original drawings of the American, A. Machien (1861) drawn on 173 plates, with a

manuscript title-page, '*Abbildungen zur Naturgeschichte der Vögel*, &c., New York, 1861'. The collection is from the library of the late George N. Lawrence.

In the library copy of E. L. Layard's *Birds of South Africa*, 1867, are inserted ten original drawings of African birds by the artist, F. R. Surtees.

In the Blacker Library are 13 valuable drawings by H. Grönvold and E. A. Wilson made (1899–1901) to illustrate the *Report* of the Voyage of the 'Southern Cross' to the antarctic region, published in 1902.

One of the most valuable manuscripts in the Blacker Library is an unpublished Appendix (in three volumes) to Latham's *Birds*, 1821–8, with 195 original water-colors of Indian avifauna by F. J. Shore. Most of these are not to be found in the 1821–8 edition, or if they do appear, the coloring is probably incorrect. This fact is pointed out by the artist-editor who states that almost every picture in his collection is painted *ad naturam* so that unaltered plumage is depicted. Copious notes accompany each drawing. A more complete review of this historical series of drawings will be found in the appended Catalogue.

Another small but unique collection of water-color drawings by W. E. Powell is in the Blacker Library, good examples of an illustrator for popular periodicals.

The E.S.W. Library has a representative collection of a rising young artist, Karl Plath, born in Chicago, 1886, who has made many successful water- and oil-paintings of birds for well-known magazines and books.

A really famous oil-painting by a well-known animal painter, E. Neale, who illustrated entirely Booth's *Rough Notes of British Birds* and contributed some of the illustrations of Dresser's *Birds of Europe*, was presented by Mr. W. J. H. Craddock to the E.S.W. Library. It pictures the Golden Eagle, the canvas measuring 3 ft. × 2 ft. 4 in.

Unusually good examples of original drawings of East Indian birds by a native artist, R. Dias, are in the Blacker Library. This collection, bound as an oblong folio and gathered between 1878 and 1881, consists of 110 colored drawings of birds, 11 of nests (two of which are in black and white), and one of eggs. Many sheets bear a printed reference to corresponding species in Jerdon's *Birds of India*. They range in size from $5\frac{1}{4} \times 2\frac{1}{2}$ to $16\frac{3}{4} \times 14\frac{1}{2}$ inches.

A unique item in the Blacker Library is a collection bound in three interleaved volumes containing 257 sheets of water-color drawings (328 subjects) of British birds' eggs by the artist, William R. Fisher. These drawings, made in 1845, with manuscript descriptions and other notes, were intended to supplement the second edition of Yarrell's *History of British Birds*. In the MS. preface, dated 1847, Fisher says 'the figures of the rarer eggs are chiefly from Mr. Yarrell's cabinet'. This fine öological atlas and letterpress was never published.

A remarkable collection of original water-color paintings of animals was secured for the Blacker Library in 1928. The animal portraits were painted between 1720 and 1740 but all efforts to identify the artist have failed. After two centuries it is not easy to obtain information regarding an illustrator who does not sign his works. The bound quarto volume of several hundred well executed figures has only this dated title-page: 'Collection d'oiseaux et d'animaux peints d'après Nature.'

A small but unique collection of well executed drawings are fourteen water-color paintings of European birds of prey by John Duncan, an English illustrator who in 1898 published his own *Birds of the British Isles*.

An unusually fine series of aquarelles is from the brush of an unknown French artist, who flourished at the end of the eighteenth century. These carefully executed drawings represent 95 birds, 7 butterflies, and 1 bat.

Of recent original drawings by animal illustrators, the Emma S. Wood Library possesses quite a few. The most important is the practically complete portfolio of colored drawings of the Birds of Fiji (about 150) by W. J.

Belcher, of Suva. The depiction of the bird life of this Polynesian group, with its appropriate surroundings, occupied nearly fourteen years of the artist's leisure, each bird being painted *ad naturam*, nearly all from live specimens in their native habitat. A number of the pictures have been used to illustrate published treatises on the avifauna of Fiji, especially a monograph on the *Birds of Fiji* by the present Compiler and Dr. Alex. Wetmore.

The single colored illustration that serves as a frontispiece to the present work has a history that the Compiler has already told in *The Ibis*, of October 1927, with the title 'Two hitherto Unpublished Pictures of the Mauritius Dodo'. It will on account of its unique character perhaps bear repetition here: 'On 16 June, 1926, there was sold at Sotheby's what is in all probability the most notable collection of water-colour drawings that has engaged the attention of natural history devotees for many a year. This property was described in the auction catalogue as "A magnificent Collection of Original Water-Colour Drawings of Natural History Subjects, by J. Van Huysum, C. Collins, P. Paillou, Eleazar Albin, G. D. Ehret, and G. Webster, loosely inserted in 29 vol. old half calf. The Collection comprises (among 495 drawings of flowers and insects) Birds: 659 drawings, by C. Collins and P. Paillou, of English and Foreign Song Birds, Game Birds, etc. in 16 vol. Beasts: 265 drawings, by C. Collins, of Animals from Hudson Bay, North America, Carolina, Brazil, Peru, India, etc. Fishes and Reptiles: 22 Drawings of Fishes, Crocodiles and Tortoises, C. Collins and E. Albin".'

This extensive array of aquarelles was originally made for Taylor White, F.R.S., of Wallingwells, Nottinghamshire, for a time Judge on the North Wales Circuit, and a man of considerable means. He was certainly an enthusiastic naturalist, a collector of curios, and a liberal patron of the arts. That he had a large collection of stuffed birds and other animals is abundantly shown by the notes he made on many of the drawings. For example, on the painting of what is entitled 'Phaeops Minor' is written: 'This bird, with many others, was brought me from North America by my learned friend, Hodgkinson Banks, Esq.' And, again: 'This bird (*Falco lagopus*) and the next, which I take to differ in sex only, were given me by Mr. Banks, together with many others that he brought from Canada and Labrador.' The following notes are appended to the picture of the Cow Deer: 'This beast with the Female was brought from Bengall and presented to Ld. Clive by Govr. Cranwell in the year 1767. The whole form of its body Divers too much from the Goats particularly its head and tail than can not properly come in to that Class. So that I considered it as a new Genus undescribed by any Author which I have met with.'

Any doubt as to the size and importance of the Taylor White collection disappears on the discovery by Mr. William J. H. Craddock, of a reference to it in the Bowdler Sharpe edition of White's *Natural History of Selborne*. On 12 April, 1770, Gilbert White, in a letter to Daines Barrington, writes: 'the collection of Taylor White, Esq., is often mentioned as curious in birds, etc.; can't I be introduced when in town, and see this museum of my namesake?'

Taylor White early put into practice the excellent plan of preserving the appearance of his specimens by having them portrayed by competent artists, not only in their natural colors but, when that was feasible, of life size. This practice seems to have been followed for many years, as shown by the dates on the pictures. Whether he authorized his artists to paint many subjects outside his own collections cannot be stated; certainly the majority of the drawings may well have been of live and stuffed examples in his own menagerie and museum.

The painters that contributed to this zoological portrait gallery were the best animal draughtsmen of their day—as announced in the Sotheby catalogue—and among the pictures was a water-color drawing of the Mauritius Dodo. So far as concerns this drawing, now in

the Blacker Library of McGill University, it was probably made from a stuffed specimen in the owner's private collection somewhere between A.D. 1730 and 1750. The particular portfolio that contained the drawing of the Dodo held 66 other pictures of Ostriches, Pheasants, Peacocks, &c., all of them by Chas. Collins and P. Paillou, 20 of them being signed and dated by Collins, 19 by Paillou. The remaining 28 were evidently painted by one or other of these artists. Most of the 67 pictures in this volume were made between A.D. 1736 and 1780.

A careful examination and comparison of the water-colour drawings convinced the Compiler that the portrait of the Dodo was by the brush of Charles Collins, who painted it about A.D. 1736, in the same year in which he published his *Set of Twelve Hand-coloured Birds, with 112 Figures of Animals*, T. Bowles, London. The latter, by the way, were the first colored figures of birds issued in this form in Great Britain.

After further investigation the Compiler says:—'I understand that the previous owners of this remarkable collection rarely opened the portfolios in which the drawings were stored, and this fact explains the freshness of the pictorial colours and the whiteness of the paper on which they were drawn nearly two hundred years ago. They have all the appearance of having been painted quite recently. In consequence I am not aware of any other painting now in existence that affords as clear and definite a portrait of the Dodo (*Raphus cucullatus*).'

'So far as the picture of the Black Dodo is concerned, the artist undoubtedly painted it with either a living or stuffed specimen in front of him. As a matter of fact, we do *not* know how many examples of the two Dodos were imported into Europe in the early years of the eighteenth century, and there was then quite as good a chance of the bird appearing in Venice, Genoa, or Milan as in Amsterdam or London.'

One of the most important collections of original paintings in the McGill libraries is that by a comparatively unknown artist, Lady Elizabeth Gwillim (1763–1807). The Compiler has already told the story of this interesting 'find' in *The Ibis*, July 1925, and the following extracts repeat the tale of a search in the cellar of a London dealer and the discovery there of a parcel containing about thirty small (10 × 14 in.) mounted and colored drawings of Indian Fishes. Each mat bore an auctioneer's (or dealer's) printed number; a few were signed 'E. G.' and upon still more were written legends (that Sir Henry Drake-Brockman very kindly translated as Urdu) of the native names of the subjects portrayed. 'With the contents of this package I was shown a portfolio containing paintings in colour of a few Indian flowers, inscribed with both their trivial and systematic names. Pasted on one of the front pages of this portfolio was a leaf on which was written "Elizabeth Gwillim, Madras, 1800–1806." While I was examining these drawings and asking for more, a salesman happened along and said to the proprietor, "I think that before I went to France in 1914 I saw a collection of bird paintings down stairs." Shortly afterwards this clerk appeared bearing an immense, dust-laden, but extremely well made portfolio about five feet broad and four high. I noticed that it was brass-bound, provided with a safety lock and a wide wooden back. It must have weighed thirty or forty pounds. On it were painted barely decipherable initials and a date—"E.C.K. 1800". The contents amazed and delighted me. I do not claim to be an art expert, but I realized at once that the paintings of Indian birds in the pockets of the giant container were by the hand of no mean draughtsman.

'We are all well acquainted with the productions of brush and pencil wielded by "ladies of quality" during the Georgian and early Victorian periods, and I fully expected to find these amateurish efforts displayed in the bird drawings, despite the rather favourable impression made on me by the paintings of the fishes and flowers. But I was agreeably mis-

taken; not only were the birds—so far as I then knew them—faithfully depicted as to plumage and posture, but the backgrounds were painted in a fashion worthy of Keulemans or Grönvold. They were in water-colour, carefully finished and on fine paper. Some of them were mounted, and all were numbered in the handwriting of the artist. Many bore (on the backs mostly) descriptive notes—measurements, colour-indications, and other data. Generally the systematic title, sometimes only the English or vernacular name, was appended. On some pictures there was no legend; on others only the genus was given. In addition to the completed drawings there was a small collection of unfinished sketches evidently the usual "studies" of the artist.

'Some of the paintings bore faint, but elaborate, pencilled descriptions of the bird-subject, references to its habitat, life-history, nesting-habits, öology, food, sexual differences, &c., showing that the artist was, for her day and generation, a well-informed zoologist.

'In every instance an appropriate background —Indian landscape, trees, shrubs, on which the particular bird was accustomed to roost, flowers, fruit or animal food on which it fed— was provided.

'In addition to notations by the hand of the artist herself the reverse of each portrait showed, as in the case of the drawings of the Indian fishes, a trade number, as if the collection had been prepared for public sale or auction.

'After I had acquired this rather remarkable "find", I naturally tried to trace the paintings to their original source, but in vain. All the dealers could tell me was that they were purchased by them 'at a sale in the country' many years before, but exactly when and where they could not remember, and were unable to discover, as no record of the sale had been preserved. From time to time the portfolio had been resurrected and an occasional picture sold; it was impossible to say who bought these odd lots.'

The Compiler cleaned the Gwillim pictures of their century of dust and other accumulations, and was much pleased to find that, chiefly owing to the fine quality of the drawing-paper, there was very little 'foxing' visible, and that the well-constructed portfolio had further preserved them. The colors were remarkably well preserved; many a brilliant hackle, mantle, wing, and tail seemed as freshly depicted as when they were painted more than a hundred years ago.

In all there were 121 drawings, and as the highest of Lady Gwillim's numbers was 201 (corresponding to 180 of the supposed dealer) it may be assumed that she had at one time and another painted at least the first number of bird-portraits, most of them distinct species.

These 121 pictures give one a fair idea of the avifauna—indigenous and migrant—of Southern India. Comparing them with Jerdon's list and with the fuller catalogues of Blanford and Oates, there are, of course, many gaps, many genera not represented at all; but, considering the circumstances, one can easily believe that if the artist had lived a few years longer she would have made a gallery of Indian bird-pictures of the greatest scientific value, worthy to rank with the major collections of the world.

The importance of the collection may warrant a few further remarks about the individual pictures, as well as about the artist herself.

In the first place, almost all the drawings are life-size. If one reflects for a moment that Indian birds include many of the largest of the Old World avifauna, the reason for the immense portfolio just described is clear.

For example, the painting of *Ardea cinerea* measures, exclusive of the mount, $33\frac{3}{4}$ in. × 24 in.; of *Dissura episcopus*, $25\frac{1}{2}$ in. × 24 in.; *Herodias alba*, $26\frac{1}{4}$ in. × 20 in.; *Ardea manillensis*, $26\frac{1}{4}$ in. × $19\frac{7}{8}$ in.; *Botaurus stellaris*, 30 in. × $24\frac{1}{2}$ in.; *Pseudotantalus leucocephalus*, 25 in. × $21\frac{1}{4}$ in.; *Gallus sonnerati*, still larger.

It has been the proud belief of Americans, the Compiler included, that J. J. Audubon first produced full-length portraits of the

largest birds, and certainly the pictures of the male and female Wild Turkey, of Washington's Eagle, &c., and their exact reproduction in the elephant folio bear out that claim. However, *so far as originals are concerned*, we must now concede the palm to Lady Gwillim who, so far as known, is the first artist-ornithologist to paint full-sized and exact pictures of any considerable number of birds whose length exceeds, say, 30 inches.

'I asked a number of trained ornithologists to examine and give me their opinion of the scientific and artistic value of the collections, among them Mr. Stuart Baker and Mr. Kirke Swann. The latter carefully revised the systematic names of the Birds of Prey, and expressed his complete satisfaction with the manner in which they had been depicted by the artist. Mr. W. L. Sclater also kindly looked over the portfolio and agreed that its contents would be of distinct value to students and would form a desirable addition to any research library. He pointed out that in the evident faithful delineation of *living* subjects the pictures formed a striking contrast to those common but really valueless drawings supplied by native artists of Indian birds. Moreover, they were likely to be free of those errors (discoloured and faded wattles, legs, ceres, mandibles, &c.) sometimes made by even our best artists who were obliged to make their drawings from bird-skins, in which decided colour-changes occur after death. Lady Gwillim, having been in a position to command live birds or recently killed specimens, had been able to avoid such mistakes.

'Having settled the status of her pictures, it remained to find out something about the artist. I have consulted all the ordinary and most of the extraordinary sources of information that would occur to one interested in the matter, but with meagre results. Many authorities—among them Sir Henry Drake-Brockman (I.C.S.), Sir William Foster of the India Office, Canon Bannister, the well-known genealogist of Hereford, whence Lady Gwillim's husband came to Madras, the Librarian of the Inner Temple, Mrs. Frank Penny, the Madras historian and well-known Indian novelist, and several others, who seemed likely to furnish some account of her life and career as the wife of a distinguished Indian judge—very kindly assisted me in this quest. In addition, I have carefully searched all the biographies, both British and Indian, at my command and have diligently explored, while in that city, all the Madras public libraries, including the files of the Madras Government *Gazette* and records in the Connemara Library at Madras. Through the courtesy of the Garrison Chaplain, The Rev. C. E. De la Bere, I was permitted to examined the Parish registers of St. Mary's Church and to copy the inscription on Lady Gwillim's tomb. I regret to say that the information thus acquired is small in amount and of disappointing character. The Government *Gazette*, the only newspaper published in the Presidency at the time, gives only the usual formal notice of the lady's death, omitting her maiden name and birth-place. As Sir W. Foster remarks, obituaries of women of title were not fashionable at the beginning of the nineteenth century.'

Briefly, all the vital data the Compiler could secure up to the present time is as follows: Elizabeth Gwillim (maiden name unknown) was born (about) April 21, 1763, and came to Madras in the year 1800 with her husband, Sir Henry Gwillim (just made K.C.M.G.) of Hereford, one of His Majesty's Puisne Justices of the newly-formed Supreme Court of Judicature. She died Dec. 21, 1807 (at the early age of 44), and was buried in St. Mary's Church, Fort St. George, Madras.

Among colored drawings employed to illustrate published works one of the best examples is the well-executed collection in the Blacker Library of Philip Henry Gosse's *Illustrations of the Birds of Jamaica*. These drawings are the originals of the 52 colored plates, 4to., London, 1849.

Because of its interesting provenance the library copy of John Walcott's 'Figures' (1788–9) is worthy of a brief note. It has two

original drawings by the author of the 'Kite-fish' and the 'Six-lined Lizard' inserted with the author's bookplate; also an inscription of a former owner on the title-page, 'Presented to me by his son, W. Walcott, 1817'.

In this connection, a title of interest to the student of New World ornithologic literature is the following, in the E.S.W. Library: 'J. Gundlach's (1810–1896) original drawing book, 1852, 8vo, pp. 121+2, Cardenas, Cuba.' This unique volume has about 67 spirited outline drawings of birds, with a loose leaf sketch of another taken from a letter addressed to Gundlach and postmarked 'Habana, 18 Oct. 1852'. It is addressed to him at Cardenas, Cuba, where he lived for many years. The birds are in each instance given their English, Spanish and zoological names. This item was secured for the E.S.W. Library through the courtesy of Dr. Chas. W. Richmond.

Among modern natural history artist-illustrators (many examples of these in the McGill collections) none is better known than Hendrik Grönvold, with a studio in the British Museum. He it was who painted the life-size portrait of the Amazon parrot, John IIIrd, now decorating the walls of the E.S.W. Library. All his drawings (plain and colored) illustrating Kirke Swann's monograph on the Accipitres (continued after the death of the original author by Alex. Wetmore) are in the Blacker Library, with many more in the best style of the artist.

Every large library inevitably collects in the course of time printed books that are so rare that they are not on the shelves of other collections of even greater size and importance. Of natural history libraries that of the British Museum stands pre-eminent, and its catalogue is the standard reference work for libraries and bibliographers in that special field. To possess a literary item of zoological interest 'not in the British Museum', meaning thereby not listed in its Natural History Catalogue so far printed, raises its value, commercial and bibliographic, considerably and indicates a probable *rarissima*. The McGill libraries have their share of these very rare items, a few of which may be mentioned at this time.

Among the many interests in life possessed by the famous diarist, Samuel Pepys, was his library. In his diary he several times mentions his collection of books, mostly bound in uniform calf, the covers stamped with the Pepys arms and further decorated with his book-plate. He was fond of arranging and indexing his roomful of literary treasures and of reading favorite volumes. He left this collection with its bookcases, manuscripts, diaries, and other appurtenances to Magdalene College, Cambridge, and there, in a building set apart for the purpose, it is displayed for all the world to see.

Now it happened that John Ray, president of the Royal Society, of which Pepys was also a member, wishing to give the diarist a worthy book for his library, presented him with a copy of the well-known Ray-Willughby treatise on *Birds*. It was the English folio edition, beautifully bound in leather. Ray had it rubricated throughout and, in addition, the usual black and white plates of the original *were carefully colored*. An inscription told the occasion of the presentation. The recipient had his coat-of-arms stamped on the covers and, of course, added his book-plate. It was a fine accession to the Pepys collection.

On the death of the diarist his executors very properly decided to present a few library duplicates to relatives. They found two examples of Willughby's *Birds*—one the usual plain copy and the other the Ray presentation. By some unexplained error the latter was handed over to a Mr. Jackson—Pepys' relative—and the other retained in the Library. After the lapse of a couple of centuries this historic volume came on the market and was purchased for the Blacker Library and is now one of its chief treasures.

There is some doubt as to the first printed book on (scientific) comparative anatomy but probably it is Giovanni Germano's rare folio, *Trattato delli più principali animali—con il corpo humano*, with copperplate illustrations,

published at Naples, 1625. The Blacker Library has a copy, so far as the Compiler knows, the only one in the New World.

The McGill libraries possess practically all the important treatises on bird life in America prepared by John James Audubon (1780–1851). This famous naturalist was born in Santo Domingo, his father being John Audubon, a French naval officer. The boy was taken to France, where he attended a military school and for a brief period studied drawing; then he came to America. A year spent on his father's farm near Philadelphia in hunting, studying, and painting birds proved a good introduction to his future career. A chequered period followed attempts to repair his father's financial losses in the West Indies, and had it not been for the devotion and assistance of his wife, Lucy Bakewell Audubon, we would probably never have heard of the artist. She practically supported the family and encouraged Audubon to travel to Europe and about America gathering subscriptions for his now world-known Atlas, *Birds of America*. After the publication of the text for the plates he returned to the home of his adoption and brought out additional works on faunal life, including (in collaboration with Bachman, father-in-law of his two sons) a work on American quadrupeds.

The library copy of his first and most important work, the remarkable *Birds of America*, issued in 'elephant' folio style, 1827–38, is a subscription example purchased for the general library by 100 merchants of Montreal in 1860. This copy, in its original covers, contains a list of the donors that forms a roster of the best known citizens of the day in that Canadian city. The gift shows not only their pride in the University but proves their intelligent interest in scientific pursuits.

The format of the original atlas resulted from Audubon's desire to reproduce life-size portraits of all the birds he painted and, as the male Wild Turkey required 'double-elephant' folio sheets, all the plates were published of that size. When these imposing series (435 hand-colored plates, 1,065 life-sized figures of 489 supposed species of birds) were exhibited in Edinburgh they became the talk of the town, as they were considered the first attempt to depict birds life-size painted from nature in their natural poses and provided with such sylvan backgrounds and other surroundings as they commonly preferred.

The McGill copy of Audubon's 8vo edition (1840–4) has inscribed on a blank title-page the following interesting note: 'Montreal, L. C., Sept. 29/42. It is with delight and the most grateful sentiments of my poor heart towards you that I subscribe myself as your sincere friend and servant, John J. Audubon. To Frederic Griffin, Esq., Montreal, Canada.'

As every student of the literature of American ornithology knows, Elliott Coues' *Instalments* were intended to be a prelude to a 'Universal Bibliography of Ornithology'. In this connection one is reminded that Coues was under considerable obligation to his friend Professor Alfred Newton, of Cambridge, England, for assistance, advice, and encouragement in the preparation of his *Bibliography*. One of the treasures of the E.S.W. Library of Ornithology in McGill University is an autographed copy from Newton to Dr. Elliott Coues, 'with the compiler's kind regards', of those 'Extracts from the Record of Zoological Literature, Vols. I–VI, containing the portions relating to Aves from 1864–1869'. This compilation proved of great help to Coues in assembling data for his great work; and the copy in question is full of his marginal notes and bracketed paragraphs indicating the transference of numerous references whose verbiage one may readily recognize in the pages of the *Instalments*.

The Blacker Library possesses ample evidence that when Coues decided he would be unable to finish the work so happily and successfully begun he did his best to engage the activities of others to that end. The account of one of these efforts—that unfortunately ended in failure—is in the form of a letter accompanying a presentation copy by the

author of the *Instalments* 'to his friend W. Ruskin Butterfield'. This communication refers to an arrangement made two years before his death by Coues with Ruskin Butterfield to proceed with and complete the publication of the *Bibliography*, so far as it concerned British Birds. For this undertaking, Coues offers every assistance in his power, including the use of his collection of unpublished notes.

Another item of interest to zoology bibliophiles is the Godman copy of that rare serial, Sir William Jardine's *Contributions to Ornithology*, 1848–53, 5 vols., with 101 col. pl.—in the Blacker Library. Two of the volumes have laid in an A. L. S. from Jardine on matters connected with the *Contributions*.

The E.S.W. Library has also an incomplete set with the original covers, and numerous MS. notes dealing with the difficult and disputed questions of the months of publication. It may be added that the dates on the covers are quite misleading and throw little light on the actual month or year of publication.

Among rare and interesting volumes in the E.S.W. Library is a unique variant of the *editio nova* (1809) of John Latham's well-known *Index Ornithologicus*. The appended notes to that title were written for the present Catalogue at the Compiler's request by Dr. Charles W. Richmond, from whom the Compiler was able to secure the copy—truly a bibliographical curiosity. 'It is of particular interest', says Dr. Richmond, 'on account of the many manuscript corrections and explanations. At the end of the work are what appear to be *two* printed title-pages, one in French and the other in Latin, both dated M.DCCC.IX, and both differing from ordinary copies. There are MS. corrections on each, with autograph additions by the hand of Milne Edwards (from whose library it was purchased) that include references to the pages where he had made *notes de moi*.'

A description of this unique volume, and giving its history, are notes in French (tallying with Dr. Richmond's annotations) in the handwriting and signature of the first owner and editor, Eloi Johanneau. These MS. notations begin 'Ex lib. Eligii Johanneau'. The first of the (front) double title-pages was later pasted in (*teste* 'Anno XII') doubtless to satisfy the regulations of the French (Republican) Government. There is also a *Préface de l'Éditeur* (pp. xiii–xvi) bound in at the end with various MS. corrections; p. xii consists of 'emendanda', continued on pp. xiii and xiv, with a *praefatio auctoria* on pp. xv–xvi. At the end are 3¼ MS. pages bound in. The *Préface* is subscribed '*Paris, ce 15 Juillet, 1809*, Eloi Johanneau'. The *Praefatio* is abbreviated from the *Index Ornithologicus* of Latham.

The library copy of the rare *Compendium of the Ornithology of Great Britain*, written by John Atkinson in 1820, belonged to Sir William Jardine, who made the following annotation on a blank fly-leaf: 'This copy of Atkinson belonged to William Yarrell, and was purchased at the Sale of his Library, 15th Novr. 1856 for £1. 1. 0. All the notes in pencil throughout the vol. are Mr. Yarrell's—Wm. Jardine.'

Of volumes that are *rarissima* (whose possession is due mostly to persistent search and the expenditure of dollars) the McGill libraries have the usual share. The evaluations in the appended Catalogue generally note unusual or scarce items, but a few of the more noteworthy items may be mentioned here. One of these is the original edition of William Turner's *Avium precipuarum . . . apud Plinium et Aristotelem*, &c., a small octavo printed in 1544, at Cologne; a well preserved example is among the treasures of the Blacker Library. This title is marked 'wanting' in the Cat. Br. Mus., 1915, and it is undoubtedly a very rare little classic. There is a translation of this book by A. H. Evans, published in 1903.

An extremely rare *Canadiana* (no copy in the Br. Mus. Nat. History, the Smithsonian, nor in the Ayer Library) is Sir James Lemoine's *Tableau synoptique de l'ornithologie du Canada*, 1864, published in Quebec. The only other copy known to the Compiler besides that in the E.S.W. Library is a better example in the library of the National Museum of Ottawa.

In the Blacker Library are several extremely

rare copies of that *opus magnum*, the *De Proprietatibus Rerum* of the Minorite, Bartholomaeus Angelicus, who flourished about 1250 A.D. The earliest is dated A.D. 1481 and may be described as follows: Gothic letter, 456 ll. the first and last blank, first initial of each book supplied in red, green, and mauve, other initials and paragraph marks in red, rubricated throughout, stamped morocco, g.e. by Riviere; fol. Cologne. Johann Koelhoff.

This is the *second* Cologne edition. The first one was issued in 1472, having been printed in that town by the famous English printer Caxton. Its author, professor of theology in the University of Paris, should not be confused with Bartholomew de Glanville (like our author an English minorite monk) who lived about A.D. 1360. The copy in hand is a remarkably fine and clean example, wanting only two blank leaves.

A previous owner of this Blacker Library copy has written in the following comments: 'The book before us is no doubt one of the earliest specimens of Caxton's art, although it it issued to the public as a work of Koelhoff.'

Caxton, on the termination of his apprenticeship to a merchant or mercer in London, in 1442, went into the Low Countries, either on his own account or as the agent of some merchants, and resided abroad for thirty years. Whilst there he studied the art of printing on the premises of Koelhoff, during which time he was assisted by Wynkyn de Worde, a native of Lorraine.

The first specimens of their craft were the present publication, *The Game and Play of Chesse*, &c., several of them not being actually issued until some years afterwards and then without date or place.

Caxton returned to England in 1472, afterwards going back and forth to the Continent, his first book printed in Westminster bearing date 1477. It was during these migratory visits that he began and finally completed the 'Bartholomaeus', which he left with his friend and instructor Koelhoff, to be published by him under his own name, whenever he chose. It was not until three years afterwards that Koelhoff presented to the world this magnificent edition of an extraordinary work.

It is from the first printed English edition that we quote the authority attributing the printing of this Latin version to Caxton. In the 'Prohemium Bartholomei de Proprietatibus rerum'—a series of introductory verses—he thus writes: 'and of your charity call to remembrance the soul of William Caxton, first printer of this book in Latin tongue at Cologne, himself to advance that every well disposed man may therein look.'

In the Osler Library is a somewhat later edition (A.D. 1482) printed at Lyons; Hain—C. 2503.

The first English translation was made by John of Trevisa for Sir Thomas Berkeley in 1397, and it was printed in London in (or about) 1495 by Wynkyn de Worde.

In the edition of 1495 the English names of the birds appear in the first paragraph of a chapter instead of at the head with the one Latin name.

Of the nineteen books into which the work is divided, Book XII is devoted first to 'De Avibus in generali', followed by accounts of 'Aquila, or Egle'; 'Ancipitre, or Gosehauke'; 'Alieto' [= Sparrowhawk?]; 'Apibus, or Bees'; 'Bubo, or Owle'; 'Columba, or Culuour' [=Dove]; 'Coturnia, or Curlewe'; 'Ciconia, or Storke'; 'Cornix, or Crowe'; 'Corvo, or Rauen'; 'Cigno, or Swanne; 'Culix, or Gnatte' [the fly]; 'Cicada, or Grasshopper'; 'Fenix' [= Phoenix]; 'Grus, or Crane'; 'Gallus, or Cocke'; 'Gallinaceo, or Capon'; 'Gallina, or Henne'; 'Grype' [=Griffon]; 'Herodius, or Faucon'; 'Hirundo, or Swalowe'; 'Kaladrius' (?); 'Larus' [a gull]; 'Locusta' [locust]; 'Mergulus, or Cote'; 'Milvus, or Kyte'; 'Nicticorax, or Nyghte Crowe'; 'Onocrocalus, or Myre-drumble'; 'Pellicane'; 'Perdix, or Pertriche'; 'Pavo, or Pecoke'; 'Passeres, or Sparrowes'; 'Strucio, or Ostriche'; 'Turture'; 'Vulture'; 'Ulula' [= Bittern]; 'Upupa, or Lapwynge'; 'Vespertilio, or Remouse' [the bat].

See, also, an account of another English translation, 1582, in this Catalogue.

A collation of the (first) Spanish edition from a copy in the hands of Maggs Bros. is the following: *18th Sept., 1494. De las Propriedades de las Cosas. El libro de proprietatibus Rerum en Romance.* Folio. Gothic letter, double columns of 46–7 lines. With the (woodcut) Arms of Spain, sixteen large woodcuts, and a large woodcut printer's device on a black ground. Woodcut initial letters. Head-lines. Rarissima. Toulouse, Henri Mayer, 18th September. Hain 2523 (without seeing it). Proctor 8722. Pellechet 1887.

Forty-six leaves (gg 1-mm 8), including the entire Book XVII, 87 pages, 'De Los Animales', from the above edition of this book describe 110 animals, preceded by several pages relating to animals in general.

Of this extremely rare incunable McGill has only a portion, presented to the Library of the Medical Faculty by Maggs Bros., London. This excerpt comprises 13 ff. which include the complete Book III, *Del Anima*, treating the several Senses. Beginning on the verso of (script) folio 24 is a discussion of *Vision—Del sentido dela vista*, illustrated by two woodcuts in the text.

A facsimile of the general title to the volume is prefixed, and on the verso of the leaf is drawn a fifteenth-century picture of the crucifixion, which does not appear in the original volume.

The Compiler had the 13 leaves bound (in imitation of contemporary binding) by Zaehnsdorf, and forwarded the volume, thus embellished, to the Medical Library.

The collation of the second English edition (in the Blacker Library) reads as follows: *De Proprietatibus Rerum.* (In English.) Black-letter, double columns of 50 lines. A.D. 1535, London. Thomas Berthelet. Second edition in English. Sm. fol. Fol. 226 misplaced. Very rare. Lowndes regards (vol. ii, 898) this edition as the *chef-d'œuvre* of Berthelet's press. This famous work is really a compilation in nineteen books from various departments of human knowledge, *and was the encyclopedia of the Middle Ages.* Berthelet's device is only found in a few copies (missing in this instance), the others having the last page blank, and very often the last leaf containing it is wanting altogether.

The title of another English print is 'Batman uppon Bartholome, his Booke *De Proprietatibus rerum*; tr. fr. the Lat. by John de Trevisa.' Folio. London. T. East. fol. 86–425. 1582. The work begins with Bk. 7 *De infirmitatibus*, and ends with Bk. 19 *De Instru. musicis.*

The copy in hand includes the zoological portion, translated by Stephen Batman. It is an extremely rare edition; this copy, in the Blacker Library, has been carefully compared with the British Museum copy, and found to agree with it.

Still another *rarissima* is Paul Barthez' *Nouvelle mécanique des mouvements de l'homme et des animaux*, of 262 pages, published at Carcassonne in 1798. It is a scientific contribution to a study of aerial flight. In the last three propositions of the first section (pp. 43–8) the bipedal posture of the bird at rest is considered. The sixth section (pp. 190–245) is a treatise on the flight of birds. This work is of historic importance for aviation, following upon that of Borelli in the seventeenth century to be described later.

Another treasure of the Blacker Library is a manuscript of 44 large octavo pages by Sir Joseph Banks, written in his own hand and giving an account of his Voyage to Iceland in 1722, after his return from the journey round the world with Captain Cook. This scientific survey of the polar regions was undertaken at the request of Lord Sandwich, First Lord of the Admiralty. Banks was on that occasion accompanied by Dr. Solander and several assistants whom he engaged at his own expense.

A rare and important item for zoologists is J. P. A. Leisler's *Nachtraege zu Bechsteins Naturgeschichte Deutschlands*, two parts, 1811–15 (all pub.). The library of the London Zoological Society is the only British collection that has a complete copy; and there is another in the Field Museum (Ayer Library) Chicago.

The E.S.W. Library is glad to have Heft I; Heft II treats of bats.

An interesting copy of the rare (Dutch) first edition of Georg Rumpf's *Amboinsche Rariteitkamer*, Amsterdam, 1705, is in the Blacker Library. It is provided with an extra engraved title-page, and gives one of the best and earliest accounts of marine life in the seas of Amboyna.

The following collation describes another rare treasure in the Blacker Library:—Anonymous. *1551. Contrafactur aller vierfüssigen Thier-Eygentliche und gantz artliche contrafactur* (4 lines). Getruckt zu Strassburg durch Balthassar Becken. Erben. DMLI. Sm. fol. Gothic letter. 32 leaves, 61 large, virile woodcuts ($5\frac{3}{8} \times 4\frac{1}{8}$ in.) of animals. Bound by Riviere. No letterpress except full page title and names of animals. On the *recto* of first leaf, in script by a contemporary hand: 'Franciscus Rossius Noëus, Chirurgus paris, 1551.' Excessively rare, not in British Museum, nor listed by Banks, Brunet, Graesse, nor is it in the *Catalogus Bibliothecae historico-naturalis.*

Another very rare treatise of 356 folios, not listed in the Nat. Hist. Cat. of the Br. Mus., is Jacques Le Fèvre's *Paraphrases*, A.D. 1521. This ambitious work endeavors to furnish in one volume all the fundamental knowledge known to date on natural philosophy.

Among the rarities, mainly the result of limited numbers and private printing, is T. W. Blakiston's *Amended List of Birds of Japan.* There is no copy in the Br. Mus. Nat. Hist.

Another McGill library rarity is listed in the Catalogue as: *1720? Miscellania curiosa de avibus.* On birds. Pp. 122. 95 pl. sq. 8vo. MSS. in English and Latin with original drawings of English and American birds.

This curious manuscript describes, with the help of Ray's *Synopsis* and other contemporary sources (quoted by the unknown author and artist), over 200 species, with colored drawings of 98. It is in the E.S.W. Library and may be of interest to research scholars. Internal evidence indicates its production in the beginning of the eighteenth century.

A number of interleaved treatises with copious notes and marginal additions—evidently in preparation for an *editio altera* that may or may not have been published—are in the McGill libraries. These unique items have something more than a passing interest and value and are regarded by the Compiler as worthy of record.

One example of these is James Backhouse's *Handbook of European Birds*, 1890. The library copy is interleaved and prepared for a second edition which, so far as the Compiler knows, was never published. The original edition is quite rare, no copy being noticed in the Cat. Br. Mus. (Nat. History) nor in the Zimmer Cat. of the Ayer Library, Chicago.

In the E.S.W. Library is the following title: L. P. Vieillot, 1816, *Analyse d'une nouvelle Ornithologie élémentaire.* 8vo, pp. 70+1. Paris. This is the rare *editio princeps* of a small but extremely important volume reprinted by the Willughby Society. The present copy bears the signature of A. Milne Edwards and was auctioned off at the sale of his library. There is a very neatly hand-printed list of 'errata' at the end of the copy. In the opinion of Dr. Chas. W. Richmond, through whom the E.S.W. Library was able to acquire the item, and to whom the Compiler is indebted for the following notes, the errata are all taken from the *Nouv. Dict. d'Hist. Nat.* (? vol. xxiv) or from some other of the author's writings of 1817 or 1818. 'There are about 120 new genera proposed in the present work as well as 16 new species. See, also, Mathews, *Birds of Australia*, Supplt. No. 5. The author tried to publish this work for two or three years before it finally came out. In spite of Vieillot's industry and activity, not to mention originality, some people tried to give him a black eye, and Temminck even published a pamphlet (*Observations sur la classification méthodique des Oiseaux, et remarques sur l'analyse d'une nouvelle Ornithologie élémentaire par L. P. Vieillot*), dated 1817 in which he answers Vieillot.'

Taking them at random, two very rare titles in the Blacker Library (neither of which

appears in the Cat. Nat. History Br. Museum) are Graefe and Naumann's *Handbuch der Naturgeschichte des Tierreichs*, 1836, and A. J. Lottinger's *Histoire du Coucou d'Europe*, 1795.

As is the case with all large natural history libraries of the New World the McGill collections are ill supplied with manuscripts and are especially defective in codices written before the invention of printing. The Compiler may therefore be excused if he quotes at some length descriptions of three Persian treatises on zoology one of which, and perhaps two, were copied before A.D. 1450.

The following notes on these extremely rare treatises were furnished by Colonel H. Murray of Simla, India, in whose possession the three manuscripts were at one time, and by Professor Syed Azhar Ali, M.A., a well-known authority on oriental manuscripts. The latter believes the three works, with their fine illustrations, constitute a 'rare treasure that should never have left India'. The remainder of the annotations is extracted from a detailed description of the second item, *Farah-Nāma-i-Jamali*, published during 1929 in the *Journal of the Royal Asiatic Society* by W. Ivanow of the Asiatic Society of Bengal, author of many works on oriental literature and former curator of Persian manuscripts in the Imperial Library at St. Petersburg.

Elsewhere it is recorded that the original of the *Nuzhat-Nāma* was written in Gurgan and Astarabad during a period of non-employment and adversity by Shah Mardan, son of Abil Khair, when he excerpted and translated from other Arabic works such facts and observations as he considered worthy to be presented to the public. He made a number of separate books in this way, one of which he called *Badir*. This one he revised and enlarged to form the *Nuzhat-Nāma*.

The *Nuzhat-Nāma* is divided into *two sections*, the first one into six chapters—on anatomy, 'temperaments', animals (mammals), birds, reptiles, insects, trees, minerals, &c.

The *second section* of the *Nuzhat-Nāma* deals with astronomy, astrology, and similar subjects.

The original manuscript of the *Nuzhat* was written in the fourteenth century A.D., after the Dilamites had thrown off the yoke of the Bagdad Caliphate.

The small, *second part* of the collection is a separate treatise of 10 pages written by Ibrahim, son of Abdul Jabbar. It deals mostly with botanical subjects, and is probably an original treatise. At least no name is entered as copyist, and it is without date.

The *third work* in this bound volume is entitled *Farah-Nāma-i-Jamali*. It was written in A.H. 899 (about A.D. 1519) by Abu Bakr, son of Muzhar, son of Muhammed, son of Abul Casim, son of Abi-Said-il-Jamal, known as Yazdi (citizen of Yazd).

The author states that while it is largely a compilation of natural science, none of the contents of the *Nuzhat-Nāma* have been repeated. The compend appears in two parts, each subdivided into chapters.

Chapter I of the *first section* deals with anatomy; Chapter II with mammals; Chapter III with birds; Chapter IV with reptiles; Chapter V with the vegetable kingdom and agriculture.

Chapter I of the *second section* deals with the four seasons and their relation to the sky, space, and time; Chapter II treats of arithmetic, astrology, logic, accounts, and the decisions and judgments of Ali, the Fourth Caliph and son-in-law of the Prophet.

Like the second treatise, this work is certainly an original manuscript. There is no mention of the copyist, but it was evidently written to supplement and bring up to date the information supplied by the other two monographs. Also, no date is given of any copy.

Mr. Ivanow, in his report on the *Farah-Nāma-i-Jamali* notes that until recently 'only one copy of the work is so far known, viz., in the library of the British Museum; it is slightly incomplete at the end, as described by C. Rieu, in his *Catalogue of the Persian Manuscripts*, vol. ii, pp. 465–6. Not long ago, Dr. Casey A. Wood, the well-known ornitholo-

gist, a professor of Stanford University, while on a tour in Kashmir, acquired another copy of this rare work, bound in one volume with the *Nuzhat-Nāma-i-Alā'ī*, and a fragment of another work in the same style'.

These three quite unique Persian manuscripts, all dealing with Natural Science, are bound together in one (original) cover.

The first manuscript is entitled *Nuzhat-Nāma-i-'Alā'ī*, or *Alla's Book of Happiness*, the name of the Patron to whose order the original manuscript was written being Alla-ud-Daula.

There are only three known complete copies of this work, one in the Bodleian Library at Oxford, one in the Ducal Library at Gotha, and the present copy.

The present manuscripts are elaborately illustrated with hundreds of colored drawings in the best style of the fifteenth century, a circumstance that greatly enhances the scientific, artistic, literary and, one may add, the commercial value of the collection.

Illustrated manuscripts of Arabic and Persian medieval works dealing with natural history, accompanied by drawings of the best artists of the period, are of the greatest rarity.

Without doubt it was the intention of the naturalist who wrote the third section of this collection, and who is responsible for the whole, to bring together all that was known in his day of natural history. To that end he adopted, first of all, the correct plan of reproducing *in toto* what he regarded as (and what probably was) the most authentic work on the general subject. With this he incorporated a few additional, original pages by a second author and, finally, he supplemented these works, one original and the other a more extensive but published monograph, by his own contributions taken from various sources, but contriving as far as possible not to duplicate the observations of the other two writers.

The colophon records that the copying of the first work—the *Nuzhat-Nāma*—was completed on Sunday, the 9th of Rabinawwal, Anno Hegirae 807, i.e. about A.D. 1427, and that the copyist was Ali son of Mahmud, son of Mahammud Suruamed Sayingh, of Shiraz.

The third page shows the seal of Mahabat Khan, Commander-in-Chief in the reign of Emperor Jahingir, and records the fact that the three books were part of the library of the former's son, Aman-ullah Khanazad-Khan-Feroz Jung.

The transcript not only contains the last two chapters, missing in the British Museum copy, but also gives very interesting variants of the latter, especially in the passages relating to the date and the place of its composition.

The student who is interested in oriental *zoologica rarissima* must not fail to read also the chapter on Oriental Literature where, in addition to the books just mentioned, are described several of great interest, some of them extremely rare.

An almost unique title (in the Blacker Library) is the first edition of G. A. Borelli's *De Motu Animalium*, 1680–1, wherein is described, for the first time in print, an explanation of bird flight based on the theory of the lever and aerial resistance. Even subsequent editions are rare; the *editio princeps* is not catalogued in any other library known to the Compiler.

A very rare zoological item (in the Blacker Library) is the original edition of Scopoli's *Deliciae Florae et Faunae Insubricae*, 1786–8, the ornithological part of which was reprinted by the Willughby Society in 1882.

In the Blacker Library, also, is the beautifully written original manuscript (with plates and portraits) of Antoine Fée's well-known *Vie de Linné*, 1832, probably the best of the French biographies of the great Linnaeus. The illustrations of this manuscript are fresh and clear —probably first states of the plates—and the volume in hand establishes the fact that it was really ready for the printer in 1831.

One of the most interesting and among the most valuable of the manuscripts in the Blacker Library is one of 46 folios by Isidore Geoffroy Saint-Hilaire, dated 1833, entitled *Considérations sur les caractères employés en ornithologie*

&c., an original essay on the classification of birds.

Of considerable interest, also, is a manuscript copy, dated 1808 (Blacker Library), of Dame Juliana Berners' *Treatyse of Fysshynge wyth an Angle*, 1496—that rare Wynkyn de Worde item—by the hand of Sir H. Ellis, Chief Librarian of the British Museum who, more than a century ago, carefully copied the excessively scarce original with his own hand.

Of interesting volumes in the E.S.W. Library unique because of a *provenance*, mention may be made of Jerdon's copy of Prince Bonaparte's *Conspectus generum avium*, that famous quarto, published 1849–57. It is interleaved, and Dr. Jerdon has made on the blank pages many manuscript notes.

McGill students of advanced ornithology should feel much indebted to a good friend—Dr. Charles W. Richmond—for a published variant of this celebrated treatise, which he discovered by the merest accident. In Dr. Richmond's own words:—'No one seemed to suspect that there were two editions of Bonaparte's *Conspectus* until I noted the fact over fifteen years ago. On comparing my own copy with the office volumes I found that one set was printed in type slightly smaller than the other, and that no new names had been added or other changes made in the (probably) later printing except certain typographical errors. The reason for the second edition may have been the occurrence of a fire or a demand for additional copies after the distribution of the type used for printing the first issue. You will find a note on the main differences between the two printings on p. 579, vol. 53, of the *Proc. U.S. Nat. Museum*. There are many bibliographical and other notes throughout the last three parts of my copy, some of which may be useful to you. There is, also, a note on the cancelled pages of Gray's *Genera of Birds* on p. 596 of vol. 53 quoted above.'

As previously stated, of volumes with *provenances* of interest to naturalists and collectors—presentation copies, correspondence, and other manuscripts bound in, added drawings &c.—the McGill libraries have their share. One example that occurs to the Compiler is an autograph letter, dated September 30th, 1861, from Dr. Jerdon to Edward Blyth regarding the latter's work on Indian Zoology. It is bound with Blyth's *Catalogue of the Birds in the Museum of the Asiatic Society*, 1849.

Quite a rare work, Pedro Blanchard's Birds of Portugal (*Thesouro de meninos*, 1817–19) is represented in the Blacker Library (no copy in London libraries) by an example formerly in the Royal Library, with the Portuguese arms stamped on the cover.

Of perhaps minor importance but still interesting are such volumes as a presentation copy of the seventh edition of Carpenter's *Microscope*, 1861–5, which the editor (W. D. Dallinger) has used as a scrap-book for appropriate newspaper clippings.

A *provenance* that approaches the historical is found in a Blacker Library incunabular copy of Pliny's *Natural History* (1483) that belonged to Laurentius Burellus. It contains his coat of arms, manuscript verse, and notes relating to the contents of this rare folio.

Very rare but interesting items are Bewick's Chap-Books of Natural History. These little tractates were published by the great (woodcut) illustrator and placed on sale at Alnwick, about 1827, for popular consumption. The E.S.W. Library possesses seven of these curiosities, with the cuts well-preserved and the text clear.

Every American zoologist is interested in the publications of Alex. Wilson, most of which are in the McGill Libraries. A very scarce variant of the 1853 printing (T. M. Brewer, *ed.*, H. S. Samuels, *pub.*) of *American Ornithology* is the publication by Magagnos and Co., N.Y., a word-for-word copy of the 1840, 1853, and 1854 issues except that it is prefaced by a major, colored and gilt title whose verbiage has been slightly altered. It is merely a bibliophilic curiosity.

Reference has several times been made to the 180 incunabula in the McGill libraries—

more than 30 of them of special interest to zoologists. It is not the purpose of the Compiler to mention all the *rarissima* among the latter, but several interesting items will be found in the present annotated Catalogue under the headings Rabanus Maurus, Aristotle, and Plinius Secundus. Attention is directed to a fourteenth-century MS. of Aristotle's *Historia animalium;* to the first printed edition of Pliny, and to a copy of the 1472 edition once owned by William Morris whose own beautiful typography was in all probability influenced by the printed pages of Jenson's Venetian publication.

The Osler Library, in which are shelved the great majority of the McGill incunabula, has many rare volumes of interest to the student of vertebrate zoology. One of these is the *Etymologiae* (cyclopedia) of Bishop Isidore (p. 641, *Bibliotheca Osleriana*) printed in Augsburg, 1472. Book XII is devoted to animals and was the standard authority on the zoology of the ninth and tenth centuries.

Even rarer than the foregoing (possibly unique) is the 1508 (second) edition, printed in Venice, of Oppian's poem, *Alieutikon*. This *rarissima* is not noted by Brunet, by the *Bibliotheca piscatoria*, or by any other catalogue accessible to the Compiler.

Of titles of excessive rarity even when they appear in one or more catalogues the McGill libraries have their share. One of these is a fundamental treatise, Blasius Merrem's *Beytraege zur besondern Geschichte der Vögel*, in two parts, with 12 col. pl., 1784–6. The long-established German dealer who supplied these volumes to the Blacker Library reports them as the first complete copy he had ever seen.

The E.S.W. and Blacker libraries are fortunate in having been able to acquire several of the small ornithologic albums of the artist Flamen, whose copperplate engravings of fauna are rare in all their states.

A rare folio of 128 pp. in the E.S.W. Library is C. E. Blanchard's *Recherches ostéologiques*, 1857, in which the osseous structures of birds are made the basis of a rational classification. This title is not listed in any of the usual catalogues.

The treatise of Jan van de Straet, published at Antwerp in 1566 (*Venationes ferarum*), is one of the rarest of books on venery, including animal fights (bull baiting &c.), for the delectation of the human brute; and similar perversions by man of the (?) lower animals. The excuse for the inclusion of the book in the library is not so much its great rarity as that it does deal with a use of birds and beasts that occupied much human energy for several thousand years, including the present century; moreover it is remarkably well illustrated, furnishing excellent portraits of the animals in question. The Blacker copy is unknown to the Nat. Hist. Cat. Br. Mus.

The botanist Pierre Boitard in 1827 wrote a *Manuel d'histoire naturelle* in 2 vols., Paris, which is not listed in any of the usual catalogues. The copy in the general library of McGill is the gift of Sir Donald Smith.

Another exceedingly rare (when complete) and important treatise is Siebold's *Fauna Japonica*, 1834–8, which after several years quest the Compiler was able to secure for the Blacker Library. Parts or single volumes of this well-known monograph are met with now and then but the entire system is seldom on the market.

A valued acquisition by the Blacker Library is a manuscript in the handwriting of the famous naturalist, John Gould, in which he describes over six hundred birds, evidently a part of the original copy for some of his numerous published contributions.

Both the Blacker and the E.S.W. libraries possess several rare treasures in the shape of zoological *Bonapartiana*. An interesting *provenance* is found in a presentation copy of Prince Charles Lucien's *Revue critique*, 1850, now in the E.S.W. Library and from the Godman collection. The Prince writes on the fly-leaf, 'To Mr. G. R. Gray, Ornithologist to the British Museum, London. This book is now sent for the third time. I hope it will reach

[you] with all the others'. The natural query is who 'bagged' the other two?

Another rare treasure is the fine Gurney library copy of Bonaparte's *Iconographie des pigeons*, 1857–8, with 55 colored plates—complete.

Among the rarities in the E.S.W. Library is J. C. Aitinger's *Kurtzer und einfaltiger Bericht von dem Vogelstellen*, a treatise of 372 pages, quarto, published at Cassel in 1653–4, not listed in the Br. Mus. Catalogue.

Another in the same collection is still rarer but of less importance, a poem by Ignacio da Persico, published in Verona in 1728.

The verses are in praise of the Canary which the author wrote for a friend, describing and depicting his method of teaching canaries vocal music by means of the flute. It is entitled *I Canarini* and is illustrated by several pretty vignettes. In the same Library is a somewhat similar work, published in Nuremberg in 1754, folio, 45 plates, intended to be a kind of supplement to Hervieux's well-known treatise on the Canary, but it is mostly occupied in describing certain wild birds and illustrating methods for their capture. It was written by F. A. von Pernau and the title is (in part) *Gründliche Anweisung alle Arten Vögel zu fangen.*

Of much greater value and scientific importance are the two following fundamental works by the famous originator of a theory of evolution, a forerunner of Darwin, J. B. de Lamarck (1744–1829).

The first title is *Recherches sur l'organisation des corps vivans*, Paris, 1802; the second *Philosophie Zoologique*, Paris, 1809, in two vols. Neither of these editions is in the British Museum and only one volume of the latter is in the Prussian State Library. Friedländer & Sohn, through whom the Compiler acquired these *rarissimae*, assured him that the volumes of the latter, *editio princeps*, was the first they had ever seen in the trade. The editions of 1830 and 1873 are comparatively common. Both these treatises are in the Blacker Library.

A rare tractate, not in the library of the British Museum (Nat. Hist.) but found in the Banks Collection, is the *Prosopopeia Animalium* of Johannes Ursinus, published at Vienne in 1541.

Probably issued in more than one printing is the very rare *Traité élémentaire d'histoire naturelle* of Martin Saint-Ange and others, 1834–40. The Blacker Library has the four-volume edition (48 *livraisons*), whose description the Compiler is unable to find in any of the usual catalogues.

Eugenio Bettoni's *Storia naturale*, 1865–71, in three volumes is now among the great rarities in zoological literature. Only 100 subscription copies were issued (in 48 parts) of which one complete set is at McGill.

The Blacker Library acquired a copy of the rare Balthasar Monconys' *Journal des voyages*, first edition, 1665–6. In this admirable history the adventurer describes the animal life encountered by him in his world-wide journeys.

A remarkable treatise is that of Stephenus A. Schonevelde on North European ichthyology, with remarks on piscine nomenclature—a very scarce item.

The McGill libraries have an unusual collection of G. L. Buffon's famous works, but one deserves special mention here—an 1852 edition of the birds of the *Histoire naturelle*, illustrated with 150 hand-colored plates, by two of Buffon's followers, A. Comte and Charles d'Orbigny. This very rare edition is not listed in any of the usual catalogues.

A complete (22 Hefte and 132 col. pl.) copy of *Teutsche* (not *Deutsche*) *Ornithologie* by Borkhausen and others, 1800–17, especially if accompanied by the original wrappers, is among the rarest of avian treatises. This scarce folio is in the E.S.W. Library.

In 1739 a Jesuit Father, Guillaume Bougeant, wrote a curious but interesting book on the psychology of the (?) lower animals, in which he anticipated by two centuries many modern theories, among them their possession of numerous human traits—especially powers of speech. The work (now very rare) became

immediately popular and was translated into English. Two editions are in the Blacker Library. This philosophic treatise, however, deeply offended the tender susceptibilities of the dominant church and Father Bougeant was promptly sent to prison for his temerity in promulgating doctrines unknown to ecclesiastic zoology. That palladium of scientific progress, the Church of Rome, gained a complete victory over its aberrant adherent. After thinking the matter over while in durance vile Bougeant decided to apologize for his indiscretion, did penance, and once more reposed on the bosom of an infallible hierarchy.

B. STUDENTS' AND LIBRARIANS' READY INDEX TO SHORT AUTHOR-TITLES ON VERTEBRATE ZOOLOGY ARRANGED GEOGRAPHICALLY AND IN CHRONOLOGIC ORDER.

THIS classified list is intended to furnish a ready reference to the more important printed books, codices, atlases, &c., in the various subdivisions of vertebrate zoology. As a rule only one title (presumably the most important) is given from the list of publications (including reprints and editions) of a particular author on a particular subject. Other publications, if any, in the McGill collections will be found under the author's name in the appended Catalogue.

The main purpose of this Index is to enable those unacquainted with the bibliography of Vertebrate Zoology to find in a few minutes the title of a work whose identity no catalogue reveals and which might easily escape the notice of any but a specially informed librarian. Owing to its classified arrangement it ought to be of distinct assistance to students and librarians generally.

The Introduction mentions and the Catalogue lists and annotates most of the hundred or more titles of County, State, Provincial and other monographs on the local vertebrate fauna of Great Britain, Germany and America; but the student is also referred to other sources for information because lack of space prevents the entry of many of these titles in this Index. The same rule applies to the large body of serials and periodicals; these headings will be found in the Catalogue proper.

As a concrete example of the working of the Student's Index, let us suppose that it is desired to find a modern book on the Birds of British Guiana. The titles most likely to furnish full information on the subject are (geographically) to be sought, first, under General Treatises on Animals of the World. The *Index Indicis* furnishes the page for that and other captions, and we find a recent treatise (in English) that will probably yield some of the required information, 1897. Lydekker's *Natural History*. Then we search for a history of *Birds in General* and soon find 1907, Knowlton and Ridgway. Next we turn to the Birds of the Americas and find 1918, Cory and Hellmayr. The list of books on the Vertebrate Zoology of South America follows in the work, 1904, Eugène André's *Guiana*. Finally we look up the titles under the heading Birds of South America, from which we choose the specific title *Birds of British Guiana*, a well-known treatise, 1912–17, Charles Chubb. Armed with these books a complete account of the subject is at once available.

When *information regarding a particular genus or species* apart from habitat is required as, for example, a description or the life-history of the Lemurs, Penguins, Salmon Trout, Cobras, or Salamanders, a search for titles under **Vertebrates of the World,** as well as under such (appropriate) headings as **Mammals of the World, Birds of the World, Fishes of the World,** and under **Reptiles and Amphibia of the World** will certainly yield the required data, and probably also refer the student to special monographs on the subject of the research.

How to find information regarding unusual titles in vertebrate zoology

If the treatise sought cannot readily be traced in this Students' Index—because it is not in the McGill libraries—the following method of search will be useful.

It not infrequently happens to both the advanced student and the librarian that difficulties arise in locating the proper title of a book, an atlas, a manuscript, a periodical, or other item in the literature of zoology preparatory to consulting the work itself.

The main difficulty in this quest lies, as a rule, in the possession of an incomplete or imperfect

heading. It is like searching for a person residing in New York or London, whose name is improperly spelled or the number of whose street is inaccurately given. It is as if one seeks John Smith, 2073 Bayview Street, when Henry Smith, 1073 Rayview Avenue is the correct address. Then again, an extract from or a separate of a paper in some obscure journal masquerades and is not uncommonly advertised as a distinct publication; or a perfectly legitimate serial with its own pagination is everywhere described like (to give one of many such examples) *North American Fauna*. It would need a literary divining rod to discover it as quoted in most catalogues (unless it be several times cross-referenced) where it is listed under *United States—Department of Agriculture—Biological Survey Division—North American Fauna*, 1889–date. In the appended Catalogue such misleading titles are cross-referenced to the caption under which they are most widely known.

There are many other stumbling blocks to be leaped or pushed aside before a hidden title is run to earth, but these two obstructions will serve to illustrate the point.

To continue, in nine cases out of ten a reference to our best authority, the six (so far published) volumes, alphabetically arranged, of the *Catalogue of the British Museum* (*Natural History*) will afford at once the required information. Failing that source, the item must be rare or the title in some respect inaccurate, in which case Mr. H. W. England of the British Museum (Natural History) Library suggests (and the Compiler quite agrees) that further search may be made as follows: If the date of issue be comparatively recent, i.e. between 1864 and 1930 the *Zoological Record* with its continuations should next be consulted. If no trace is there discovered, try that painstaking source of knowledge, the *Bibliotheca Historico-Naturalis* of Wilhelm Engelmann (and his subsequent coadjutors J. V. Carus and O. Taschenberg) that quite well covers the whole range of literary vertebrate (and other) zoology from 1700–1930.

There are several original (confirmatory and other) sources of information for books, &c., published before 1700, incunabula, &c.; e.g. the catalogues of Hain and Brunet; for titles appearing between 1835 and 1930 the supplements to the *Archiv f. Naturgeschichte*; between 1878 and 1930, the *Zoologischer Anzeiger*.

These investigations made and the title sought still eludes the investigator, the research student is justified in declaring either that his first-hand description of the title is insufficient or inaccurate, that the work is an excerpt from some obscure item, or that he is the lucky possessor of a *unica aut zoologica rarissima*, not recognized by the usual courts of record.

Although a few periodicals on the various sections of vertebrate zoology are included in this list, it is by the Compiler considered desirable to speak of the most important of them in a special chapter, to which the student is referred. The Catalogue will be found to be well provided with such titles in all the scientific languages. As a rule only one (usually the first) edition of a work is quoted; other printings are generally to be found and evaluated in the appended Catalogue.

The following abbreviations are employed in this Index: (Anat.)=Anatomy; (Aust.)=Australia, Australasia; (Batr.)=Batrachians, Amphibia; (Belg.)=Belgium; (Bib.)=bibliographic or biographic work; (Austria.)=the former Austrian Empire; (Can.)=Canada; (Cat.)=Catalogue list; (Class.)=classification, nomenclature, generic or specific lists; (Comp. Zool.)=comparative zoology; (Den.)=Denmark; (Dict.)=dictionary, encyclopedia; (Dist.)=geographic distribution, zoogeography; (Evol.)=evolution, Darwinism; (Ext.)=separate or extract; (G.B.)=Great Britain; (Geog.)=geographic distribution; (Ger.)=Germany, Middle Europe; (Holl.)=Holland, the Netherlands; (Hung.)=Hungary; (It.)=Italy; (Mass.)=Massachusetts; (Mus.)=Museum collections; (Neur.)=neurology; (N.Z.)=New Zealand; (Ont.)=Province of

Ontario, Canada; (Oöl.)=Oölogy, nests and eggs; (Oph.)=ophthalmology; (Paleon.)=paleontology, fossils, extinct species; (Per. or Period.)=periodical or serial; (Polyn.)=Polynesia; (Pop.)=popular; (Psych.)=psychology, animal behaviour; (Que.)=Province of Quebec, Canada; (Russ.)=Russian Empire; (Scand.)=Scandinavia; (Seneg.)=Senegambia; (Text-b.)=text-book, college manual; (Tr.)=travels; (U.S.A.)=United States; (Voy.)=Voyages, expeditions, travels; -date=A.D. 1930.

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VERTEBRATE ZOOLOGY

General Treatises on Animals of the World

This section includes works that deal with more than one branch of general vertebrate zoology. The student of a particular branch will, accordingly, consult not only the titles here listed but look up special works under their separate headings. To assist in the search most titles have (in parenthesis) an indication of any subject specially treated in the quoted work.

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50 A.D. Plinius Secundus.
140. Aelian.
220. Oppian.
602. Isidorus. (Dict.)
840. Mesuë.
1020. Theobald.
1170. Averroës.
1240. Albertus Magnus.
1260. Barthomaeus Anglicus.
1265. Thomas de Cantimbré.
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1385. El-Damiri.
1467. Rabanus Maurus.
1469. Plinius Secundus. (Ancient)
1473. Vincent de Beauvais.
1478. Megenberg, K. von.
1479. Anselm of Canterbury.
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1535. Oviedo. (Travels)
1547. Wotton, Ed.
1551. Gesner, Conrad.
1552. Wotton, Ed.
1555. Gesner, Conrad.
1557. Scaliger, J. C.
1565. Aelianus, C. (P. Gillius trans.)
1583. Gyllius, Petrus.
1584. Ferrarensis, J. A. (Ruminants)
1590. d'Acosta, José (Travels)
1595. Frey, H. H.
1598. Ruini, Carlo. (Horse)
1599. Aldrovandi, Ulisse.
1599. Imperato, Ferrante. (Fossil)
1601. von Hoevel, H.
1603. Agricola, J. G. (Deer)
1605. Belon, Pierre. (Comp. Zool.)
1605. Lécluse, C. de.
1612. Franz, Wolfgang. (Class.)
1618. Sennert, Daniel. (Class.)
1619. Waldung, Wolfgang. (Hare)
1625. Germano, Giovanni. (Comp. Zool.)
1633. Jonstonus, Johannes.
1635. Nieremberg, J. E. (Class.)
1641. Tulp, Nicholas. (Comp. Zool.)
1645. Severinus, M. A. (Comp. Zool.)
1648–58. Piso, Guil. (Cent. Am.)
1650. Severinus, M. A. (Comp. Zool.)
1653. Worm, Olaüs. (Comp. Zool.)
1655. Worm, O. (Museum)
1657. Plinius Secundus. (Dutch ed.)
1658. Bontius, Jacob.
1659. Thomasius, Jacob. (Mole)
1661. Sperling, Johann. (Class.)
1663. Bochart, Samuel. (Sacred)
1672. Bonfadini, Vita (Sport)
1672. Willis, Thos. (Comp. Psych.
1673. Blaes, Geraard. (Comp. Anat.)
1673. Le Grand, A.
1680. Platter, Félix. (Fossil)
1680. Rommel, Petrus. (Comp. Embryol.)
1681. Blasius, Gerard. (Anat.)
1685. Collins, Saml. (Comp. Zool.)
1687. Fabricius ab Aquapendente. (Comp. Zool.)
1693. Ray, J. (Mam. and Snakes)
1705. Rumphius, G. E.
1712–30. Redi, Francesco. (Comp. Zool.)
1713. Ray, J. (Birds and Fishes)
1718. Willughby, F. (Letters. Ray)
1720. Valentini, M. B. (Comp. Anat.)
1729. Caius, John. (Dogs)
1734–65. Seba, A.
1740–66. Linnaeus, Carl. (Class.)
1744. Aelianus, C. (Gr. and Latin)
1746. Linnaeus, Carl. (Class.)
1749–1804. Buffon, G. L. L. de.
1754. Klein, J. T.
1761–85. Houttuyn, M.
1762. Brisson, M. J. (Class.)
1762. Haller, Albrecht von. (Bib.)
1763–5. Alléon-Dulac, J. L.
(1765–80). Daubenton, E. L. —Boddaert, P. (Atlas) (Reprint, 1874)
1766. Hasselquist, F. (Voy.)
1766. Linnaeus, Carl. (Class.)
1766. Pallas, P. S.
1766–99. Buffon, G. L. L.
1766–1804. Vosmaer, A. (Separates)
1767. Byron, J. (Voy.)
1769–1800. Banks, Sir J. (Bib.)
1773. Hawkesworth, J. (Voy.)
1775. Forskål, Peter.
1776. Brown, Peter.
1776. Linnaeus, C.
1777. Cook, Capt. James. (Travel)
1777–84. H.M.S. 'Resolution.' (Voy.)
1778. Pallas, P. S.
1779–81. Bonnet, Chas.
1780. Haller, A. van. (Birds and Fishes)
1780–4. Borowski, G. H.
1782. Spallanzani, Lazaro.
1784. Mauduyt, L. (Encycl.)
1786. Hunter, John. (Comp. Zool.)
1786. Scopoli, G. A.
1786–9. Sparrman, A. (Mus.)
1787. Coxe, W. (Voy.)
1788. Forster, J. R.
1788–93. Gmelin, J. F. (Class.)
1790. Shaw, George. (Class.)
1790–1813. Shaw and Nodder. (Atlas)
1791. Valmont de Bomare. (Dict.)
1792. Osbaldiston, W. A. (Dict. Game)
1792. Shaw, G. (Mus.)

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1792, 1819. Vicq d'Azyr, Félix. (Comp. Anat.)
1794. Darwin, Erasmus. (Evol.)
1795–7. Bechstein, J. M. (Caged Animals)
1796. Miller, J. F. (Atlas)
1797. Bechstein, J. M. (Caged Animals)
1797. La Pérouse, J. F. de G. (Voy.)
1797. Römer, J. J.
1798. Cuvier, G. L. C. de.
1798–1800. Banks, Jos. (Cat.)
1800. Wiedemann, C. R. W. (Cuvier trans.)
1800–26. Shaw, Geo.
1801. Fischer, Gotthelf.
1802. de Lamarck, J. B. P. (Comp. Zool.)
1802–5. Treviranus, L. C.
1803. Camper, Peter. (Comp. Zool.)
1804. Hermann, J.
1805. Goldsmith, Oliver. (Pop.)
1805. Pulteney, R. (Linnaeus)
1806. Duméril, A. M. C. (Class.)
1806. Fischer de Waldheim, G. (Class.)
1806. Linnaeus, C. (Class.)
1806. Linnaeus, C. (Syst. Nat. Turton)
1807. Gravenhorst, J. L. C. (Class.)
1807. Temminck, C. J. (Birds and Monkeys)
1807. Wood, Wm. (Zoogeog.)
1809. de Lamarck, J. B. P. (Evol.)
1809–26. Shaw and Stevens.
1809–30. Descript. de l'Égypte. (Exped.)
1811. Illiger, J. C. W. (Class.)
1811. Pallas, P. S.
1811. Spix, J. B. (Class.)
1811–32. von Humboldt and Bonpland. (Voy.)
1813. Carus, T. L. (It. Poem)
1814–28. Home, Sir E. (Comp. Anat.)
1815. Naumann, J. F.
1815. Spix, J. B. (Crania)
1816–30. Dictionnaire des Sc. Nat.
1817. Cuvier, G. L. C. de.
1817. Goethe, J. W.
1818. Saint-Hilaire, E. G. (Comp. Anat.)
1819–21. Bojanus, L. H. (Comp. Embryol.)
1820–33. Swainson, W. (Atlas)
1821. Bowdich, T. E. (Class.)
1821. Ranzani, C. (Pop.)
1821–38. Pander, H. C. (Comp. Osteol.)
1822. Fleming, John. (Class.)
1823. Buckland, W. (Fossils)
1824. Dampier, W. (Voy.)
1824. Wood, Wm. (Cat.)
1824–6. Freycinet, Louis de. (Voy. 'Uranie'—'Physicienne')
1824–6. Quoy and Gaimard. (Voy.)
1825. Latreille, P. A. (Class.)
1826. Müller, Johannes. (Comp. Zool.)
1826. Parry, W. E. (Voy. 'Hecla'—'Fury')
1826. Portlock and Dixon. (Voy. 'George and Charlotte')
1826. Tiedemann, F. (Comp. Zool.)
1826–30. Duperry, L. I. (Voy. 'La Coquille.')
1827–35. Griffith, E. (Cuvier)
1827–37. Baer, K. E. (Embryol.)
1828. Lesson, R. P. (Mam. and Birds)
1828. Stark, John.
1828. Wilson, John. (Atlas)
1828–30. Erman, A. G. (Tr.)
1828–33. Buffon, G. L. L. (Lejeune ed.)
1828–38. Meckel, J. F. (Comp. Zool.)
1829. Bennett, E. T. (Menagerie)
1829. Kaup, J. J. (Class.)
1830–2. Lesson, R. P.
1830–5. Dumont d'Urville, J. S. C. (Voy. 'Astrolabe')
1830–45. Jardine, Sir W. (Pop.)
1831. Lesson, R. P. (Centurie)
1831–43. Voigt, F. S.
1832. Brown, Capt. Thos.
1832. Lear, E. (Parrots)
1833–43. Oken, Lorenz.
1834. Carus, Carl Gustav. (Comp. Zool.)
1834. Dewhurst, H. W. (Cetacea)
1834. Jourdan, A. J. L. (Dict.)
1834. McMurtrie, H.
1834. Rudolphi, C. A. (Phys. and Anat.)
1834. Swainson, W. (Nat. Hist.)
1834. Wagner, R. (Text-b.)
1834–40. Martin Saint-Ange, G. J., and Guérin, F. E.
1834–43. Naturalist's Library.
1834–63. Reichenbach, H. G. L. (Naturfreund)
1834–74. Buffon, G. L. L. de. (Suites)
1835. Swainson, W. (Class.)
1835–6. Quoy and Gaimard. (Voy.)
1835–7. Kaup, J. J. (Class.)
1835–42. Voigt, F. S. (Text-b.)
1835–46. Cuvier, G. L. C. F. D. (Comp. Zool.)
1835–59. Todd, R. B. (Cyclopedia)
1836–49. Cuvier, G. L. C. F. D.
1837. Bougainville, L. A. (Voy. 'Thetis'—'Esperance')
1837. Rudolphi, C. Asmund. (Comp. Zool.)
? 1838. Al-Jāhiz. (Arabic)
1838. Swainson, W. (Menageries)
1838–44. Darwin, Chas. (Voy. 'Beagle')
1839. Beechy, W. F. (Voy. 'Blossom')
1839. Laplace, C. P. T. (Voy. 'La Favorite')
1839. Lesson, R. P. (Voy. 'La Coquille')
1839. Vigors, N. A. (Arctic Voy.)
1839–43. Darwin, C. (Voy.)
1840. Brown, Capt. Thos.
1840. Swainson, W. (Taxid.)
1840–5. Owen, Richard. (Teeth)
1841–8. von Rusegger, Jos. (Travels)
1841–9. Fraser, L. (Atlas)
1841–52. Vaillant, A. N. (Voy. 'La Bonite')
1842. Blainville, H. M. D. de. (Anat.)
1842. Blainville, H. M. D. de. (Fossils)
1842. Serres, M. de. (Migration)
1842. Wilkes, Chas. (Synopsis. Exped.)
1842–54. Dumont d'Urville. (Voy. 'Astrolabe'—'Zélée')
1843. Jacquemont and J. Geoffroy St. Hilaire. (Voy.)
1843. Oken, L. (Atlas)
1843–4. Hinds, R. B. (Voy. 'Sulphur')
1844. Müller, Johannes. (Amphioxus)
1844 and 1856. Wilkes, Chas. (Voy.)
1844–5. Carpenter, W. B. (Treatise)
1844–75. Richardson and Gray. (Voy. 'Erebus'—'Terror')

General Treatises on Animals of the World, *continued.*

1845. Wilkes, Chas. (Exped.)
1845–60. Meyer, C. E. H. (Paleon.)
1846. Schmarda, K. L. (Dist.)
1846. Siebold and Stannius. (Comp. Zool.)
1846–55. Petit-Thouars, A. A. du. (Voy. 'Venus')
1847. Schwann, Th. (Histology)
1847–8. Pöppig, E. F. (Illust.)
1848. Naumann, J. F. (Taxid.)
1848–54. Agassiz, J. L. R. (Bib.)
1848–57. Kollar, Vincenz.
1850. Hakluyt, R. (Voy.)
1850–80. Chenu, J. C. (Encycl.)
1851. Vogt, C. C.
1851–3. Wood, J. G. (Pop. Nat. Hist.)
1852. Catlow, M. E. (Pop.)
1852. Leidy, Jos. (Comp. Zool.)
1852. Vogt, C. C. (Pop.)
1852. Wilkes, Chas. (Exped. 2nd ed.)
1852–4. 'Herald' (E. Forbes.) (Voy.)
1853. Schmarda, L. K. (Zoogeog.)
1854. Agassiz, Louis. (Class.)
1854. Forbes, Edward. (H.M.S. 'Herald')
1854. Gould, A. A. (Pop.)
1854. Siebold and Stannius. (Comp. Anat.)
1854–76. Pickering, Chas. (Dist.)
1855. Wolf, Joseph. (Atlas)
1856–8. Hoeven, J. van der. (Handbook)
1857. Sclater, P. L. (Dist.)
1859. Agassiz, Louis. (Class.)
1859. Bronn, H. G. (Class.)
1859. Darwin, Chas. (Evol.)
1859. Gegenbaur, Carl. (Comp. Anat.)
1860. Leunis, J. (Class.)
1860. Owen, Richard. (Paleon.)
1861. Carus, J. V. (Class.)
1861. Gosse, P. H.
1861. Jones, T. R.
1861. Rathke, M. H. (Embryol.)
1861. Wolf, Josef. (Atlas.)
1862. Gaudry, Jean A. (Fossils.)
1863. Huxley, Thos. (Comp. Biol.)
1863–4. Dana, J. W. (Class.)
1863–75. Carus and Gerstraecher. (Handbook.)
1864. Hawkins, B. W. (Comp. Osteol.)
1864. Huxley, T. H. (Comp. Anat.)
1864. Oppian. (It. Trans.)
1864–5. Wood, J. G. (Class.)
1864–72. Gegenbaur, Carl. (Comp. Anat.)
1865. Bates, H. W. (Voy. Amazons)
1865. Blumenbach, J. F. (Comp. Anat.)
1865. Tenney, S.
1865. Wüllerstorf-Urbair, B. von. (Voy. 'Novara')
1866. Haeckel, Ernst. (Evol.)
1868. Claus, C. F. W. (Text-b.)
1868. Haeckel, Ernst. (Class.)
1868. Haeckel, Ernst. (Evol.)
1869. Huxley, T. H. (Class.)
1869. Seeley, H. G. (Paleon.)
1869–82. Martin, P. L. (Zool. Gardens)
1870. van Beneden, E. (Embryol.)
1870. Figuier, Louis. (Pop.)
1870. Rolleston, Geo. (Class.)
1871. Huxley, Thos. (Comp. Zool.)
1871. Mivart, St. G. (Class.)
1873. Brenchley, J. L. (Voy. 'Curaçoa')
1873. Haughton, S. (Phys.)
1873. Hoefer, J. C. F. (History)
1874. His, Wilhelm. (Embryol.)
1874. Marey, É. J. (Aviation)
1874. Wolf and Elliot. (Atlas)
1875. Goodrich, S. G. (Pop.)
1875. Vogt, C. C. (Atlas)
1875. Zittel, K. A. von. (Paleon.)
1875–6. Berthelot, S. (Comp. Anat.)
1876. Buchner, L. (Psych.)
1876. Rauber, August. (Embryol.)
1876. Wallace, A. R. (Zoogeog.)
1876–93. Zittel, Karl A. von. (Paleon.)
1877–8. Schmarda, L. K. (Text-b.)
1878. Altum and Landois. (Text-b.)
1878. Macalister, A. (Text-b.)
1879. Balbiani, É. G. (Embryol.)
1879. Wilson, Andrew. (Essays)
1879–date. Friedländer, R. (Bib.)
1880. Wallace, A. R. (Island Life)
1880–1. Balfour, F. M. (Comp. Embryol.)
1880–4. Willughby Soc. Publications.
1880–95. Thomson, C. W. (Voy.)
1881. Homeyer, E. F. von. (Migration)
1881. Nordenskiöld, N. A. E. (Voy.)
1881. Thomson, C. Wyville. (Voy. 'Challenger')
1881. Tissandier, G. (Fossils)
1882. Kingsley, J. S. (Bibliog.)
1882–4. Scudder, S. H. (Class.)
1883. Hamerton, P. G.
1883. Nicols, Arthur. (Comp. Anat.)
1883. Phipson, Emma. (Shakespeare)
1883. Romanes, G. J. (Psych.)
1883. Selenka, E. (Embryol.)
1883. Wilson, Andrew. (Evol.)
1883–5. Science Lectures. (Pop.)
1883–6. Leunis, J. (Class.)
1884. Bartholomew, J. (Geog. Atlas)
1884. Cassell's Natural History. (Pop.)
1884. Hoernes, R. (Paleon.)
1884. Standard Natural History. (Pop.)
1884–date. Cat. Br. Museum. (Nat. Hist. All subjects)
1885. Stejneger and others. (Pop.)
1885–97. Bolton, H. C. (Cat.)
1886. Dawson, Sir Wm. (Handbook)
1886. Engelmann and Taschenberg. (Bibliog.)
1886. Guillemard, F. H. (Voy. 'Marchesa')
1886. Ridgway, R. (Color-index)
1886. Vienna K. Acad. Wissenschaft. (Polar Ex.)
1887. Healy, M. A. (Voy. 'Corwin')
1887. Heilprin, A. (Zoogeog.)
1887. Nicholson, H. A. (Paleon.)
1887. Nordenskiöld, N. A. E. von. (Voy. 'Vega')
1887. Pettigrew, J. B. (Locomotion. Flight)
1888. Rolleston, Geo. (Comp. Anat.)
1889. Neumayr, Melchior. (Paleon.)
1889. Nicholson and Lydekker. (Paleon.)
1889–date. Albert, Prince of Monaco. Explorations)
1890. Baker, S. W. (Game)
1890. Hertwig, Richard.
1890. Poulton, E. B. (Coloration)
1890–3. Brehm, A. E.

General Treatises on Animals of the World, *continued.*

1891. Lydekker, R. (Fossil)
1891. Woods, Henry. (Fossils)
1891–6. Lang, A. (Comp. Anat.)
1892. Hutchinson, H. N. (Pop.)
1892. Wundt, Wilhelm. (Psych.)
1892–7. Romanes, G. J. (Evol.)
1893. Wood, J. G.
1893–6. Lydekker, R. (Pop.)
1894. Bateson, Wm. (Evol.)
1894. Davie, O. (Taxid.)
1894. Willey, A. (Evol.)
1894–7. Sharpe, R. B. (Allen's Libr.)
1894–1900. Smit, J., and Sclater. (Antelopes)
1895. Roux, Wilhelm. (Evol.)
1895. Thomson, J. A.
1895. Williams, H. S. (Geol. Biol.)
1895–1909. Harmer, S. F.
1896. Cope, E. D. (Evol.)
1896. Cornish, C. J. (Psych.)
1896. von Graff, L.
1896. MacBride, E. W. (Morphology)
1896. Thomson, J. A. (Pop.)
1896–1902. Zittel, K. A. von. (Text-b. Paleon.)
1896–date. Schulze, F. E. (Treatise)
1897. Lydekker and others. (Nat. Hist.)
1897. Lydekker and Nicholson. (Paleon.)
1897. Reynolds, S. H. (Comp. Anat.)
1897. Wiedersheim, R. E. E. (Comp. Anat.)
1897–1902. Leuckart u. Chun. (Bib.)
1898. Beddard, F. E. (Elementary)
1898. Hertwig, W. A. O. (Comp. Embryol.)
1898. Roule, L. (Embryol.)
1898. Woodward and Smith. (Paleon.)
1898–1901. Gegenbaur, Carl. (Comp. Anat.)
1898–1909. Sedgwick, Adam. (Text-b.)
1899. Sclater, W. L. (Zoogeog.)
1899. Sherborn, C. D. (Class.)
1900. Cunningham, J. T. (Sex dimorphism)
1900. Groos, K. (Comp. Psych.)
1901. Lucas, F. A. (Paleon.)
1901. Lydekker, R. (Game)
1901. Schmeil, F. O. (Biol.)
1901. Shipley and MacBride. (Text-b.)
1901–2. Cornish, C. J. (Pop.)
1902. Lib. Zool. Soc. (Cat.)
1902. Sherborn, C. D. (Class.)
1902. Waterhouse, C. O. (Index)
1902–6. Perrier, J. O. E.
1902–10. Heider and Korschelt. (Comp. Embryol.)
1903. Lucas, F. A. (Paleon.)
1903. Steinmann, J. H. C. (Paleon.)
1903. von Zittel and Eastman. (Paleon.)
1903–4. Woburn Library of Natural History.
1904. Weber, Max. (Syst.)
1905. Salt, H. S.
1905–7. Goethe, J. W.—
1906. Andrews, C. W. (Fossils)
1907. Depéret, Chas. (Paleon.)
1907. Jordan, D. S. (Evol.)
1907. Linnaeus, C. (Life)
1907–13. Przibram, H. (Exp. Zool.)
1908. Fox, Wm. J. (Cat.)
1908. Nicoll, M. J. (Voyage)
1908–14. 'Scotia.' (Voy. Antarctic)
1909. Bateson, W. (Heredity)
1909. Seward, A. C. (Evol.)
1909. Taschenberg, E. O. W. (Venomous Animals)
1909. Thayer, G. H. (Coloration)
1909. Vinci, L. da. (Comp. Zool.)
1909–12. Stromer von Reichenbach. (Paleozool.)
1910. Br. Mus. (Nat. Hist.) (Guide. Fossils)
1910. Lydekker, R.
1910. Sokolowsky, A.
1910. Wallace, A. R. (Evol.)
1910. Wilser, L. (Ancient Man)
1912. Hertwig, Oscar. (Biol.)
1912. Knipe, H. R. (Paleon.)
1912. Lehmann, Alfred. (Psych.)
1912–17. Wood, Casey A. (Comp. Oph.)
1913. Pycraft, W. P. (Psych.)
1914. Cornish, C. J. (Pop.)
1916. Holmes, S. J. (Psych.)
1917. Cornish, C. J. (Pop.)
1917. Kingsley, John S. (Comp. Anat.)
1917. Przibram, H. (Exp. Zool.)
1917. Thomson, J. A.
1918. Loeb, Jacques. (Exp. Biol.)
1919. Bourne, G. C. (Comp. Anat.)
1919. Dürken, B. (Exp. Zool.)
1919. Morgan, T. H., and others. (Mendelian)
1920. Dendy, A. (Pop.)
1920. Harvey, E. N. (Psych.)
1920. Henderson, I. F., and W. D. (Dict.)
1921. Schmid, B.
1923–7. Marshall, W. A. L. (Atlas)
1924. Lomer and Mackay. (Cat.)
1925. Hirsch-Schweigger, E. (Dict.)
1925. Locy, W. A. (Biol.)
1925. Perrier, E. (Tr. de Zool.)
1925. Stempell, W.
1926. Ellenberger, W. (Comp. Anat.)
1926. Johnston, H. H. (Pop.)
1926. Osborn, H. (Econ.)
1926. Thomson, J. A.
1927. Haskins, C. H. (Med. Sc.)
1927. Ihle, J. E. W. (Anatomy)
1927. Shumway, W. (Embryol.)
1927. Un. List Serials. (Cat.)
1927. Weidenreich, F. (Comp. Anat.)
1927. Boulenger, E. G. (Pop.)
1928. De Beer, G. R. (Text-b.)
1928. Hiersemann, K. W. (Cat. of Incunabula)
1928. Uexküll, J. J. (Biol.)
1928–9. Daglish, E. F.
1929. Bibliotheca Osleriana. (Cat.)
1929. Chapman, Frank M. (Pan. Zone)
1929. Hornaday, W. T. (Taxid.)
1929. Jordan, H. (Vert. Phys.)
1929. London Zoological Society. (London Zoo)
1929. Mudge, I. G. (Cat.)
1929. Papez, J. W. (Comp. Neur.)
1929. U.S. Cat. of Books.
1930. Brambell, F. W. R. (Embryol.)
1930. Goodrich, E. S. (Anat. and Class.)
(1930). Scott, G. G. (Gl. Biol.)

Birds of the World—General Treatises

? 1370. Frederick II. (Falconry)
1544. Turner, W. (Pliny, Arist.)
1555. Belon, Pierre.
1573. Coiter, Volcher. (Anat.)
1603. Schwenckfeld, Caspar.
1676. Ray, J.
1676. Robert, N. (Atlas)
1676. Willughby, F. (Latin. Ray)
1695. Baerius, N.
1731–8. Albin, E.
1738–40. Albin, Eleazer.
1743–51. Edwards, George.
1745. Barrère, P.
1750. Klein, J. T. (Class.)
1752. Moehring, P. H. G. (Class.)
1760. Brisson, M. J.
1767. Salerne, F. (Synopsis)
1767–76. Manetti, X.
1773. Pennant, Thomas. (Class).
1779. Schäffer, J. C.
1775. Hayes, W.
1781–1802. Latham, John.
1784. Huber, Jean. (Flight)
1784. Jacquin, J. F.
1786. Pennant, T. (Buffon)
1786–9. Sparrman, A. (Museum)
1800. Daudin, F. M.
1801–5. Levaillant, F. (Parrots)
1801–6. Levaillant, F. (Paradise)
1802. Audebert and Vieillot. (Atlas)
1802. Vieillot and Audebert. (Oiseaux dorés)
1802–83. Montagu, Col. (Dict.)
1805. Desmarest, A. (Tangaras)
1805. Vieillot, L. J. P. (Song-birds)
1806. Levaillant, F. (Promerops)
1808. Temminck-Knip. (Pigeons)
1813–15. Temminck, C. J. (Pigeons)
1815. Temminck, C. J.
1816. Vieillot, L. J. P. (Class.)
1816, 1883. Vieillot, L. J. P. (Analyse)
1819. Latham, John. (Class.)
1820. Temminck, C. J. (Class.)
1820–39. Temminck and Laugier. (Atlas)
1825. Vieillot, L. J. P. (Atlas)
1825. Vieillot and Audebert. (Galerie des Oiseaux)
1827. Wagler, J. G. (Class.)
1827–43. Selby and Jardine. (Atlas)
1828. Lesson, R. P. (Manual)
1829. Lesson, R. P. (Hum. birds)
1831. Lesson, R. P. (Traité)
1831. Rennie, J. (Anat.)
1832. Lear, Edward. (Parrots)
1832–5. Kittlitz, F. H. von. (Atlas)
1833. Geoffroy Saint-Hilaire, I. (Class. Orig. Manus.)
1833–4. Jardine, W. (Hum. birds.)
1834. Gould, John. (Toucans)
1834. Jardine, W. (Game)
1834–41. Hahn, C. W. (Atlas)
1835. Baker, T. B. L. (Class.)
1835. Selby, P. J. (Pigeons)
1836. Wood, Neville. (Bib.)
1836–7. Swainson, W. (Class.)
1838. Eyton, T. C. (Anatidae)
1838. Swainson, W. (Fly-catchers)
1838–43. Temminck, C. J. (Pigeons)
1840. Gray, Geo. R. (Genera)
1840. Nitsche and Burmeister. (Eng. trans. Pterylg.)
1841. Belany, J. C. (Falconry)
1841–2. Gray, G. R. (Class.)
1843. Jardine, W. (Sun-birds)
1844. Rennie, James. (Anat.)
1844–9. Gray, Geo. R. (Class.)
1844–76. Gray, Geo. R. ('Erebus' and 'Terror')
1845–9. Des Murs, M. A. P. O. (Atlas)
1845–9. Du Bus, B. L. (Atlas)
1845–56. Thienemann, F. A. L. (Oöl.)
1845–79. Reichenbach-Meyer.
1848. Blanc, Alphonse.
1849. Des Murs, M. A. P. O. (Atlas)
1849. Friderich, C. G. (Cage-birds)
1849. Kaup, J. J. (Class.)
1849–61. Gould, John. (Hum. birds)
1850–65. Bonaparte-Finsch. (Class.)
1852. Gray, G. R. (Oöl.)
1852. Martin, W. C. L. (Hum. birds)
1853. Heermann, A. L. (Oöl.)
1853. Schinz, H. R. (Atlas)
1853. Sclater, P. L. (Galbulidae)
1854. Stanley, E.
1855. Gray, Geo. R. (Class.)
1857. Souancé, C. de. (Parrots)
1857. Steenstrup, J. J. S. (Vultures)
1858. Yarrell, W.
1860. Des Murs, M. A. P. O. (Oöl.)
1863. Sundevall, C. J. (Aristotle)
1864–5. Elliot, D. G. (Grouse)
1864, 1902. Wolley, J. (Oöl.)
1864–1907. Newton, Alfred. (Oöl.)
1865. Bonaparte, Prince Charles. (Class.)
1866. Montagu, Geo. (Dict.)
1866. Sundevall, C. J. (Woodpeckers)
1867. Blasius, R. (Oöl.)
1867. Huxley, T. H. (Class.)
1867. Tegetmeier, W. B. (Poultry)
1868. Tegetmeier, W. B. (Pigeons)
1868–71. Sharpe, R. B. (Kingfishers)
1869. Figuier, G. L.
1869. Seidlitz, G. C. M. (Oöl.)
1869–71. Gray, Geo. R. (Class.)
1869–73. Cassell's Birds.
1872–3. Sundevall, C. J. (Class.)
1872–7. Giebel, C. G. A. (Bib.)
1873. Brodrick, Wm. (Falconry)
1874. Bourcier, J. (Hummers)
1874. Tegetmeier, W. B. (Reprint Atlas)
1874–6. Wright, L. (Pigeons)
1874–7. Mulsant and Verraux. (Trochilidae)
1874–98. Br. Mus. Nat. Hist. (Cat.)
1876. Palmén, J. A. (Migration)
1876–80. Shelley, G. E. (Sun-birds)
1877. Russ, K. F. O. (Carrier Pigeon)
1877–80. Blakston, W. A. (Cage-birds)
1878–83. Reichenow, A. (Parrots)
1879. Benecke and Kupffer. (Embryol.)
1879. Owen, Richard. (Extinct.)
1879. Selys-Longchamps, M. E. (Class.)

Birds of the World—General Treatises, *continued.*
1879–82. Sclater, P. L. (Jacamars)
1880–7. Sharpe, R. B. (Hum. birds)
1881. Blyth, E. (Cranes)
1881. Eudes-Deslongchamps, E. (Trochilidae)
1881. Seebohm, H. (Passeriform)
1881. Tegetmeier, W. B. (Cranes)
1881. Tegetmeier, W. B. (Pheasants)
1883. Gadow, H. F. (Passeriform)
1883. Gould, John. (Hum. birds)
1883–9. Sharpe, R. B.
1884. Greene, W. T. (Parrots)
1884. Russ, K. F. O. (Parrots)
1884–6. Dresser, C. (Meropidae)
1885. Palacký, J. (Zoogeog.)
1885–94. Sharpe and Wyatt. (Swallows)
1886. Ridgway, Robt. (Color St.)
1887. Green, J. F. (Birds of the Ocean)
1887. Seebohm, H. (Charadrūdae)
1888. Fürbringer, Max. (Anat. and Class.)
1888–9. Bartlett, E. (Fringillidae)
1888–9. Lydekker, R. (Fossil)
1889. Waterhouse, F. H. (Index)
1890. Shufeldt, R. W. (Anat. Raven)
1890. Wright, Lewis. (Poultry)
1891. Bendire, C. E. (Oöl.)
1891. Harting, J. E. (Falconry)
1891. Leverkühn, P. (Oöl.)
1892. Sharpe, R. B. (Class.)
1893. Wickmann, H. (Oöl.)
1893–6. Newton, Alfred. (Dict.)
1894. Witherby, H. F. (Ducks)
1895. Headley, F. W. (Comp. Anat.)
1895. Marshall, W. A. L. (Anat.)
1896. Mivart, St. G. (Loriidae)
1896. Newton, A. (Dict.)
1897. Blaauw, F. E. (Cranes)
1898. Beddard, F. E. (Anat. and Class.)
1898. Chapman, Frank. (Pop.)
1898. Sharpe, Bowdler. (Pop.)
1898–1902. Seebohm, H. (Thrushes)
1898–1902. Sharpe, R. B. (Turdidae)
1899. Evans, A. H.
1899. Nehrkorn, A. (Oöl.)
1900. Evans, A. H. (Cam. Nat. Hist.)
1900. Haecker, V. (Bird-song)
1901. Eckstrom, Fannie. (Pop.)
1901. Lydekker, R. (Dist.)
1901–12. Br. Mus. (Nat. Hist.) (Oöl.)
1904. Tegetmeier, W. B. (Pheasants)
1905. Alphéraky, S. (Geese)
1905. Wytsman, P. A. G. (Class. genera)
1907. Butler, A. G. (Sex Cage-birds)
1907. Rothschild, L. W. (Extinct)
1907–10. Godman, F. D. (Petrels)
1909. Knowlton and Ridgway.
1910. Beetham, Bentley. (Herons, &c.)
1910. Pycraft, W. P. (History)
1912. Clarke, W. E. (Migration)
1917. Wood, Casey A. (Comp. Oph.)
1918–22. Beebe, Wm. (Pheasants)
1921. Knight, C. W. R.
1921. Lambrecht, K. (Fossils)
1922–6. Phillips, J. C. (Ducks)
1923. Thomson, J. A. (Biol.)
1924–date. Swann, H. K., and A. Wetmore. (Accipitres)
1925. Allen, G. M. (Psych.)
1925–8. Encyclopédie Ornithologique.
1926. Figuier, Louis. (It. trans.)
1926. Heilmann, G. (Evol.)
1926. Thomson, J. A. (Migration)
1926. Wetmore, Alex. (Migration)
1927. Wetmore, Alex. (Migration)
1928. Hendy, E. W.
1929. Arrigoni degli Oddi, Ettore.
1929. Tavistock, Lord. (Parrots)
1930. Wood, Casey A. (Psittacosis)

Mammals of the World

General Treatises

1560. Constantinus, A.
1584. Aemilianus, J.
1607. Topsell, Edward.
1777. Erxleben, J. C. P. (Class.)
1777. von Zimmermann, E. A. W. (Dist.)
1778–9. Pallas, P. S.
1793. Pennant, T. (Synopsis)
1800. Audebert, J. B. (Monkeys.)
1809. Lawrence, J. (Horse)
1812. Cuvier, G. L. C. F. D. (Fossils)
1815–55. Schreber, J. C. D. von. (Atlas)
1820–2. Desmarest, A. G.
1823. Scoresby, W. (Whales)
1824. Cuvier and St. Hilaire.
1824–9. Schinz, H. R. (Class.)
1827. Lesson, R. P. (Manual)
1827–34. Lichtenstein, M. H. C. (Atlas)
1827–41. Temminck, C. J.
1828. Geoffroy Saint-Hilaire, E.
1829. Huet, J. B. (Mus.)
1829. Khayl-nāma. (Horse, Persian)
1833–40. Royle, J. F. (Himalayas)
1835. Treviranus, R. C. (Anat.)
1836. Cuvier, F. G.
1839–64. de Blainville, H. M. D. (Osteogr.)
1845. Owen, Richard. (Fossil)
1845. Wagner, J. A.
1845–6. Jardine, W. (Deer)
1845–6. Jardine, W. (Felidae)
1845–6. Jardine, W. (Monkeys)
1845–6. Jardine, W. (Ungulates)
1846–8. Waterhouse, G. R. (Nat. Hist.)
1848. Gosse, P. H.
1850. Latham, R. G. (Ethnology)
1850. White, A. (Pop.)
1854. Agassiz, L.
1854–5. Gervais, F. L. P.
1862. Gerrard, E. (Fossils)
1865. Owen, R. (Gorilla)
1866. Gray, J. E. (Seals)
1866. Murray, Andrew. (Zoogeog.)
1868. Gray, J. E. (Dolphins)
1868 and 1871. Gray, J. E. (Whales)
1869. Gray, J. E. (Carnivora)
1870. Gray, J. E. (Monkeys)
1872. Gray, J. E. (Ruminants)
1873. Kowalevsky, V. O. (Fossils)
1874. Elliot and Wolf. (Pop.)
1874. Giebel, C. G. A.
1874. Gray, J. E. (Sea-lions)
1876. Buchner, L. (Psych.)
1881–4. Retzius, M. G. (Ear)

Mammals of the World—General Treatises, *continued.*

1883. Elliot, D. G. (Felidae)
1883. Vogt and Specht. (Pop.)
1883–92. Selenka, E. (Embryol.)
1885. Guenther, A. (Br. Mus.)
1885. Hartmann, C. E. W. R. (Apes)
1885. Parker, W. K. (Evol.)
1885–7. Lydekker, R. (Sheep)
1888–90. Lydekker, R. (Fossil)
1890. Mivart, St. G. (Canidæ)
1891. Flower and Lydekker.
1894. Forbes, H. O. (Primates)
1894. Guenther, A. (Br. Mus.)
1894. Willey, A. (Amphioxus)
1894–1900. Sclater and Thomas. (Antelopes)
1895. Lydekker, R. (Carnivora)
1896. Lydekker, R. (Geog.)
1898. Lydekker, R. (Deer)
1898–1905. Trouessart, É. L. (Cat.)
1899. Sclater, P. L., and W. L. (Zoogeog.)
1900. Andrews, C. W. (Br. Mus.)
1900. Beddard, F. E. (Whales)
1901. Reighard and Jennings. (Felidae Anat.)
1902. Beddard, F. E.
1902. Roosevelt, T. (Deer)
1904. Elliot, D. G. (Midd. Am.)
1904. Palmer, Theodore. (Cat.)
1904. Weber, M. C. W. (Comp. Anat.)
1905. Lankester, E. R. (Extinct Animals)
1905. Ridgeway, W. (Horses)
1906. Ingersoll, E.
1907. Kirby, W. F.
1907. Lydekker, R. (Ungulata)
1907. Miller, G. S. (Bats)
1910. Gregory, W. K. (Syst.)
1910. Osborn, H. F. (Paleon.)
1910. True, F. W. (Whales)
1912. Anderson, K. (Bats)
1913. Lydekker, R. (Ungulates)
1913–16. Br. Mus. (Nat.Hist.) (R. Lydekker)
1916. Forbush, E. H. (Cat.)
1917. Cornish, C. J. (Pop.)
1923. Cox, H. (Dogs)
1927. Ash, E. C. (Dogs)
1928. Holmes, S. J. (Frog)
1929. Rhys, E. (Horses)
1929. Yerkes, R. M. (Apes)
1930. Mather, K. F. (Paleon.)
1930. Demaison, A. (Pop.)

Fishes of the World

General Treatises

1508. Oppianus. (Poem)
1534. Oppianus. (Poem)
1544. Rondelet, Guillaume.
1554–5. Rondeletius, G.
1554–8. Salviani, Hippolyte.
1555. Rondelet, Guillaume.
1558. Bossuet, F.
1620. Belon, Pierre.
1667. Voigt, Gottfried.
1685. Willughby, Francis.
1686. Ray, J.
1705. Rudbeckius, O. (Biblical)
1722. Oppian. (Ancient)
1738. Artedi, Peter.
1740–9. Klein, J. T.
1754. Gronovius, L. T.
1760. Schaeffer, J. C.
1770. Goüan, A.
1782. Broussonet, P. M. A.
1785–95. Bloch, Marcus.
1785. Monro, Alex. 2nd. (Comp. Anat.)
1802–5. Sonnini, C. N. S.
1817. Walcot, John. (Amph. also)
1828–49. Cuvier and Valenciennes.
1833–44. Agassiz, Louis. (Fossil)
1844. Oersted, A. S. (Geog.)
1846. Owen, Richard. (Comp. Anat.)
1847. Valenciennes, A.
1851. Gosse, P. H.
1854. Gronovius, L. T. (Cat.)
1858. Jones, T. R. (Pop.)
1859–70. Günther, A. C. L. G. (Cat. Br. Mus.)
1860. Karr, A. (Dict.)
1868. Mangin, A.
1874. Bosgoed, D. M. (Bib.)
1877. Holdsworth, E. W. H.
1877. Räuber, H.
1877. Young, A. (Salmon)
1880. Günther, A. C. L. G.
1883. Westwood and Satchell.
1884. Sørensen, W. E. (Comp. Anat.)
1885. La Blanchère, H. de. (Dict.)
1888. Vaillant, L. L.
1889–1900. Woodward, A. S. (Fossil Fishes)
1890. Cunningham, J. T. (Sole)
1891. Palacký, J. (Zoogeog.)
1891. Sauvage, H. E.
1894. Hickson, S. J. (Deep Sea)
1895. Dean, Bashford.
1895. Goode and Bean.
1895–date. Boulenger, G. A. (Cat. Br. Mus.)
1896. Goode and Bean. (Deep Sea)
1901. Pycraft, W. P. (Pop.)
1904. Bridge, T. W.
1907. Jordan, David S. (Pop.)
1912. Gemmill, J. F.
1912. Murray and Hjort. (Deep Sea)
1915. Goode and Bean.
1916–17. Dean, Bashford. (Bib.)
1917–20. Jordan, D. S. (Class.)
1920. Jenkins, J. T. (Sea Fisheries)
1922. Naef, A. (Fossil)
1928. Daniel, J. F.

Reptiles and Amphibia of the World

General Treatises

1607. Topsell, Edward.
1742. Owen, Chas. (Serpents)
1758. Haller, Albrecht von. (Frogs)
1792. Schoepf, J. D. (Turtles)
1827. Heyden, C. H. von.
1828. Lamouroux, Madame S.
1830. Wagler, J. G. (Amphibia)
1834–54. Duméril and Bibron.

Reptiles and Amphibia of the World—General Treatises, *continued.*
1835. Kielsen, F. C. (Amphibia)
1838–9. Swainson, W. (Fishes and Reptiles)
1849. Gray, J. E. (Cat.)
1850. Gosse, P. H.
1856. Stannius, H. (Anat.)
1865. Mayer, A. F. J. C. (Eggs)
1866. Bronn, H. G.
1869. Figuier, G. L.
1870. Duméril and Bocourt.
1872. Gray, J. E. (Turtles)
1872. Sowerby and Lear. (Testudinata)
1874. Mivart, St. G. J. (Frog)
1877. Guenther, A. C. (Tortoise)
1882. Hopley, C. C. (Pop.)
1886. Cope, E. D. (Snakes)
1888. Lydekker, R. (Br. Mus.)
1889. Bottard, A.
1889–96. Boulenger, G. A. (Br. Mus. Cat.)
1890. Hoffmann, C. K.
1890. Lydekker, R. (Cat.)
1893. Cooke, M. C.
1896. Tornier, G.
1900. Cope, E. D.
1901. Gadow, H. (Camb. Nat. Hist.)
1901. Seeley, H. G. (Extinct Reptiles)
1906. Dickerson, M. C. (Frogs)
1910. Ditmars, R. L. (Pop.)
1910. Vaillant, L. L.
1911. Griffini, Achille. (Pop.)
1912. Lydekker and others. (Amphibia)
1913. Br. Mus. (Nat. Hist.) (R. Lydekker)
1914. Ditmars, R. L. (Pop.)
1914. Fairchild, D. G. (Pop.)
1914. Williston, S. W. (Pop.)
1915. Boulenger, G. A.
1915. Reese, A. M. (Alligators)
1919. Abel, O. (Evol.)
1921. Arldt, T. (Fossil)
1925. Noble, G. K. (Frogs)
1925. Williston, S. W. (Osteol.)
1926. Smith, M. (Sea Snakes)
1927. Ditmars, R. L. (Last ed.)
1928. Marshall, A. M. (Frog)
1928. Shumway, W. (Frog)
1930. Fitzsimons, F. W. (Pythons)

Africa—The Whole Continent

General Treatises

1795. Levaillant, F. (Tr.)
1798. Levaillant, F.
1818. Tuckey and Cranch. (Exped.)
1826. Clapperton and Denham. (Tr.)
1870. von der Decken, C. C. (Tr.)
1883–7. Rochbrune, A. T. de. (Seneg.)
1888. Drummond, H. (Tr.)
1923. Johnston, H. H. (Autobiog.)
1923. William of Sweden, Prince.
1924. Statham, J. C. B.

Birds

(1796). Levaillant, F.
1802. Levaillant, F.
1858. Müller, J. W. von.
1867. Barboza du Bocage, J. V.
1872. Andersson, C. J.
1896–1912. Shelley, G. E.
1900–5. Reichenow, A.
1930. Sclater, W. L. (Bib.)

Mammals

1899. Bryden, H. A. (Game)
1899. Engell, M. C. (Elephants)
1903. Baum, H. (Exped.)
1909. Bryden, H. A.

Fishes

1909. Boulenger, G. A. (Freshwater)

America—Both Continents

General Treatises

1707–25. Sloane, Hans. (Voy.)
1751. Bartram, J. (Tr.)
1826–8. Godman, J. D. (Semi-pop.)
1835–6. Poeppig, E. F.
1859–60. Suckley, G., and Cooper, J. (Pacific Coast)
1882. Forster, J. R. (Cat.)
1895–1909. Shipley, A. E.
1900. Shufeldt, R. W.
1902. Stone and Cram.
1920. Shipley, A. E. (Zool.)
1924. Meisel, Max. (Bib.)

Birds

1801–2. Levaillant, F. (Birds)
1846. Selys-Longchamps, M. E.
1861–2. Sclater, P. L. (Cat.)
1917. Pearson, T. G.
1918–date. Cory and Hellmayr.

Fishes

1875. Scott, G. C.
1888. Goode, G. B.

Asia—Whole Continent

General Treatises

1240. Kasvini. (Persia)
1756. Russell, Alex. (Aleppo)
1856–69. Tchihatcheff, P. de. (Asia Minor)
1867–76. Martens, E. von. (E. Asia)
1873. 'Ilaju'l-baha'im. (Hind. lith.)
1876. Blanford, W. T. (Persia)
1876. Goldsmid, F. J. (Persia)
1891. Hart, H. C. (Palestine)
1898. Hedin, S.
1901. Zichy, J. (Exped.)
1901–date. Weber, M. C. W. (Siboga Voy.)
1902–3. Gardiner, John S. (Maldives)
1905–7. Mission Indo-Chine. (French Govt.)
1923. Survey of the Fauna of Iraq.

Birds

1828. Ehrenberg, C. G. (Africa and Asia)
1831. Gould, John. (Himalayas)
1832. Gould, John. (Himalayas)

Asia—Whole Continent—Birds, *continued.*

1850–83. Gould, John, and Sharpe, R. B.
1870–1. Marshall, Bros. (Barbets)
1888. Gould and Sharpe.
1888–94. Menzbir, M. A. (Turkestan)
1890. Timur-Mirza-Qajar. (Persian Falconry)
1929. Wilkinson, E. S. (Shanghai)

Mammals

1829. Husami. (Persian poem. MS.)
1829. Khayl-nama. (Persian MS.)

Europe, Whole Continent

General Treatises

1797–1857. Sturm, Jacob. (Atlas)
1840. Schinz, H. R.
1865. Möbius, K. A. (Dist.)
1899. Scharff, R. F.
1900. Nansen, F. (North Pole)
1907. Scharff, R. F. (Zoogeog.)
1928. Scharff, R. F. (Dist.)

Birds

1759. Nobleville, A. de. (Nightingale)
1830. Schinz, H. R. (Nests and Eggs)
1832–7. Gould, John.
1834. Gloger, C. W. L.
1839–51. Susemihl, J. C. (Atlas)
1842. Werner, J. C. (Atlas)
1844. Schlegel, Hermann.
1848. Lefèvre, A. (Oöl.)
1849. Degland, C. D.
1849. Des Murs, M.A. (Atlas)
1858–63. Bree, C. R.
1861–4. Dubois, Ch. F.
1867. Gerbe and Degland.
1868. Norguet, A. (Races)
1868–72. Dubois, A., and C. F. (Oöl.)
1870–1. Fritsch, Anton.
1871. Dubois, A. (Zoogeog.)
1871–9. Dresser and Sharpe.
1871–96. Dresser, H. E. (Supplement)
1872. Rey, E. (Zoogeog.)
1875–6. Bree, C. R.
1876. Hamonville, J. C. L. D' (Cat.)
1884–91. Olphe-Gaillard, Léon. (W. Eur.)
1890. Backhouse, J.
1890. Petersen, S. (Song-birds)
1895. Gätka-Rosenstock. (Migration)
1902. Arrigoni degli Oddi, E.
1903–14. Hartert, Ernst.
1905. Herman, Otto. (Migration)
1905–10. Dresser, H. E. (Oöl.)
1906–9. Jourdain, F. C. R. (Oöl.)
1907. Herman, Otto. (Prot. Birds)
1912. Floericke, K. (Pop.)
1912. Trouessart, E. L. (Cat.)
1914–15. Solomirsky, D. (Atlas)

Mammals

1840. Schinz, H. R.
1859. Clermont, T. F.
1889. van Beneden, P. J. (Whales)
1896. Hamilton, E. (Wild Cat)
1912. Br. Mus. (Nat. Hist.) (Miller, G. S.) (W. Eur.)

Fishes

1624. von Schonfeld, Stephan.
1842. Vogt, C. C. (Salmon)
1862. Widegren, H. (Salmon)
1886. Seeley, H. G. (Freshwater)
1909. Challenger Soc. (N. Atlantic)

Reptiles and Amphibia

1758. Roesel von Rosenhof. (Amphibia)
1859. Clermont, T. F.
1875. Schreiber, E.
1896. Fraas, E. (Fossil)
1897–8. Boulenger, G. A. (Batrachia)

North and Middle Africa

General Treatises

1661. Flacourt, E. de. (Madagas.)
1704. Bosmar, Guillaume. (Guinea)
1735. Alpinus, Prosper. (Egypt)
1803. Bory de Saint-Vincent, J. B. (Canary Islds.)
1812. Milbert, J. G. (Canary Islds.)
1818. Tuckey, Jas. K. (Congo)
1823. Thunberg, C. P. (Guinea)
1826. Denham and Clapperton. (Tr.)
1826–8. Rüppell, W. P. E. S. (N. Africa.)
1831. Lowe, R. T. (Madeira)
1835–6. Desjardins, J. F. (Madagas.)
1835–44. Webb and Berthelot. (Canary Islds.)
1836–8. Wagner, M. F. (N. Africa.)
1841. Wagner, M. F.
1845–51. Lefèbvre, C. T. (Abyssinia)
1846–60. Levaillant, Jean. (N. Africa)
1850–70. Fornasini and Bianconi. (Mozamb.)
1852–82. Peters, W. C. H. (Mozamb.)
1859–61. Peters and von der Decken. (E. Africa)
1867–70. Barboza du Bocage, J. V. (Portug. Africa)
1868. Pollen and van Dam. (Madagas.)
1870. Blanford, W. T. (Abyssinia)
1872. Andersson, C. J. (Damaral.)
1875. Drummond, W. H. (S.E. Africa)
1875. Mellis, J. C. (St. Helena)
1875. Monteiro, J. J. (Congo)
1875–84. Milne-Edwards, A. *et al.* (Madagas.)
1875–1900. Grandidier, A. (Madagas.)
1881. Oates, F. (Cent. Africa)
1882. Révoil, G. (Somaliland)
1888. Böhm, R. (E. Africa.)
1888. James, F. L. (Somaliland)
1891–1901. Stuhlmann, F. L. (Tr.)
1893. Selous, F. C. (Tr., S.E. Africa)
1893–1910. Deutsch-Ost-Afrika.
1898. Annales, Musée du Congo. (Belgium)
1898–1907. Anderson, John. (Egypt)
1900. Peel, C. V. A. (Somaliland)
1901. Moore, J. E. (Cent. Africa)

North and Middle Africa—General Treatises, *continued.*
1902. Blanchard, R. A. E. (Madagas.)
1905. Schillings, C. G. (E. Africa)
1906–? Voeltzkow, A. (Exped.)
1910. Sjöstedt, B. Y. (E. Africa)
1910–date. Adolf of Mecklenburg. (Exped. Cent. Africa)
1913. Hartert, E. J. O. (Sahara)
1915. Sibree, J. (Madagas.)
1925. Carpenter, G. D. H. (E. Africa)
? 1929. Akeley, Carl E. (Pop.)

Birds

1802. Bechstein, J. M.
1845. Rüppell, W. P. E. S. (Abyssinia)
1857. Hartlaub, C. J. G. (W. Africa)
1861. Hartlaub, C. J. G. (Madagas.)
1864. Antinori, O.
1869–75. Heuglin, M. T. von. (N.E. Africa)
1870. Finsch and Hartlaub. (E. Africa)
1875. Bouvier, A. (E. Africa, Cat.)
1875. Heughlin, M. T. von. (N.E. Africa)
1885. Büttikofer, J. (Liberia)
1901. Harris, H. E. (Canary Islds.)
1905. Oberholser, H. C. (E. Africa)
1905. Whitaker, J. I. S. (Tunisia)
1909. Whymper, C. (Egypt)
1930. Bannerman, D. A. (W. Africa)
1930. Bates, G. L. (W. Africa)

Mammals

1203. Abdallatif. (Nile)
1835–40. Rüppell, W. P. E. S. (Abyssinia)
1847–51. Prévost, F. (N. Africa)
1848. Guérin-Méneville, F. E. (Abyssinia)
1875–90. Edwards and Grandidier. (Madagas.)
1910. Drake-Brockman, R. E. (Somaliland)
1917. Lönnberg, E. (Cent. Africa)
1918. Hollister, N. (E. Africa)

Fishes

1843–60. Lowe, R. T. (Madeira)
1850–60. Guichenot, A. (N. Africa)
1866. Playfair, R. L. (Zanzibar)
1869. Petherick, J., and B. H. (Cent. Africa)
1896. Pfeffer, G. J. (E. Africa)
1907. Chevalier, Auguste. (Cent. Africa)
1912–date. Alluaud and Jeannel. (E. Africa)
1918. Hubbs, C. L. (E. Africa)

Reptiles and Amphibia

1827. Heyden, C. H. G. von. (Atlas)
1851. Guichenot, A. (N. Africa)
1897. Sjöstedt, B. Y. (Kamarun)

South Africa

General Treatises

1803. Bory de Vincent, J. B. (African Islds.)
1811–12 Lichtenstein, M. H. C. (Cape of Good Hope)
1812. Milbert, J. G.
1834–6. Smith, Andrew.
1838–49. Smith, Andrew.
1884. Smith and Sharpe.
1892. Distant, W. L. (Tr.)
1900–6. Stark and Sclater.
1901–7. Natal.
1905. Flint, W.
1908. Pretoria Annals.
1908–13. Schultze, L. S. (Cent. S. Africa)
1928. Lotsy, J. P. (Evol.)
1929. Hamilton, J. S.

Birds

1848. Strickland and Melville. (Mauritius Dodo)
1867. Layard, E. L.
1875–84. Layard, E. L.
1882. Holub and von Pelzeln.
1884. Layard, E. L. (S. Africa)
1900. Stark and Sclater.
1904. Reichenow, A.

Mammals

1840. Harris, W. C. (Game)
1900–1. Sclater, W. L.
1919–20. Fitzsimons, F. W.
1920. Haagner, A. K.

Fishes

1868. Fritsch, G. T.
1927. Barnard, A. K. (Cat.)

Reptiles and Amphibia

1876. Owen, R. (Fossils)
1912. Fitzsimons, F. W.

Middle America and West Indies

General Treatises

1628–51. Hernandez, Francisco. (Cent. Am.)
1658. de Rochefort, C. (W. Indies)
1705–25. Sloane, Hans. (W. Indies)
1722. Labat, J. B. (Voy.)
1750. Catesby, M.
1750. Hughes, G. (Barbados)
1809. Descourtilz, M. E. (Tr.)
1810. Ledru, A. P., and Sonnini. (Virgin Islds.)
1823. Thunberg, Carl P. (Mid. Am.)
1825. Harlan, R. (U.S.A.)
1840–50. de la Sagra, Ramon. (Fr. trans. Cuba)
1851–8. Poey, Felipe. (Cuba)
1859. Jones, J. M. (Bermuda)
1868–1909. Mission Scientifique au Mexique et dans l'Amérique.
1872–93. Gundlach, J. (Cuba)
1879–1915. Godman and Salvin. (Cent. Am.)
1880. Ober, F. A. (W. Indies)
1887. Bovallius, Carl. (Mid. Am.)
1888. Belt, T. (Nicaragua)
1902. Verrill, A. E. (Bermuda)
1927–date. Porto Rico and Virgin Islands. (Survey. W. Indies)

Middle America and West Indies, *continued.*

Birds

1839–61. Sagra, R. de la (Cuba)
1841. Swainson, W. (Cent. Am.)
1847. Gosse, P. H. (Jamaica)
1849. Gosse, P. H. (Atlas. Jamaica)
1854. Bonaparte, Prince. (Cal. and Nicaragua)
1858. Saussure, H. L. F. de. (Mexico)
1859. Baird, S. F. (Mexico)
1859. Bryant, H. (Bahamas)
1859. Wedderburn, J. W. (Bermuda)
1862. Sallé and Parzudaki. (Mexico)
1864. Sclater and Salvin. (Panama)
1866. Léotaud, A. (Trinidad)
1880. Cory, Charles B. (Bahamas)
1880. Sclater, W. L. (Cent. Am.)
1885. Cory, Charles B. (W. Indies)
1887. Stahl, A. (Porto Rico)
1889. Cory, Chas. B. (W. Indies)
1892. Cory, C. B. (W. Indies)
1902. Lembeye, J. (Cuba)
1928. Sturgis, B. B. (Panama)

Mammals

1877. Gundlach, J. (Cuba)
1904. Elliot, D. G. (Mid. Am.)

Fishes

1859. Girard, C. F. (Mexico)
1904. Meek, S. E. (Mexico)

Reptiles and Amphibia

1870. Bocourt, F. (Mexico)
1881. Gundlach, J. (Cuba)
1882. Brocchi, P. (Batr.)
1884. Garman, S. (Bermuda)
1887. Cope, E. D.
1904. Stejneger, L. (Porto Rico)

U.S.A. and Canada

General Treatises

1638–71. Josselyn, Jno. (N. Am. Tr.)
1675. Martens, Friedrich. (Arctic)
1678. Josselyn, John. (New Eng.)
1731–48. Catesby, Mark. (U.S.A.)
1751. Bartram, John B. (U.S.A.)
1771. Forster, John.
1784–5. Pennant, Thos.
1791. Bartram, Wm. (U.S.A.)
1792. Belknap, J. (N.H.)
1792. Pennant, T. (N. Am.)
1793. Hontan, Baron de la. (Canada)
1793. Imlay, G. (U.S.A.)
1794. Williams, Saml. (Vt.)
1795. Hearne, Saml. (Hud. Bay)
1799. Barton, B. S. (U.S.A.)
1814. Lewis and Clark. (N. West.)
1819. Leach and Sabine. (Arctic Ex.)
1819. Ross, Sir John. (Arctic Voy.)
1823. Say, Thos. (Exped.)
1825. Keating, W. H. (Canada)
1828. Parry, W. E. (N. Pol. Exped.)
1829–37. Richardson, John. (Canada)
1829–37. Richardson and Swainson. (N. Am.)
1834–41. Wied-Neuwied, Max. (N. Am.)
1835. Hitchcock, Edward. (U.S.A.)
1835. Jefferson, Thos. (U.S.A.)
1835. Ross, J. C. (Arctic Voy.)
1836. Godman, J. D.
1839. Townsend, John K. (U.S.A.)
1839. Zoolog. Survey. (Mass.)
1842. Thompson, Zadock. (Vt.)
1842–4. De Kay, J. E. (N.Y.)
1850. Agassiz and Cabot. (Lake Sup.)
1852. Baird, S. F. (Utah)
1852. Geol. Survey Wis. and Iowa. (D. D. Owen)
1852. Leidy, Jos. (Paleon.)
1852. Stansbury, H. (Utah)
1853. United States. (Zuni and Colorado Riv.)
1853. U.S. Geog. and Geol. Surveys. (Colorado)
1853. Woodhouse, S. W. (S.W.)
1854. Warren, J. C. (Fossils)
1855–9. U.S. Pacific Rd. Survey.
1859–60. Suckley and Cooper. (Exped.)
1865. Josselyn, John. (New Eng.)
1866. Lord, J. K. (Brit. Colum.)
1868. Cronise, T. F. (Calif.)
1871. Ross, A. M. (Canada)
1873. Adams, A. L. (Quebec)
1873–90. United States Survey. (Territories)
1874–89. U.S. Geog. and Geol. Surveys. (W. of 100th Merid.)
1875. Harting, J. E. (Prybilov Islds.)
1877. Miller, S. A. (U.S.A. Fossils)
1878. Marsh, O. C. (Evol.)
1878. Nares, G. S. (North Pole)
1882. Forster, J. R. (Will. Soc. Hudson Bay.)
1882. Ohio, State of. (Zoology)
1883. Barton, B. S. (N. Am.)
1883. Corwin, Steamer. (Voy. Arctic)
1883. Stearns, W. A. (Labrador)
1885. U.S. Exped. Pt. Barrow. (Voy. Arctic)
1886. Turner, L. M. (N. Am.)
1889–date. U.S. Biol. Survey. (N. A. Fauna)
1894. Ord, Geo. (Reprint)
1895. Swann, H. K. (Nova Scotia)
1900. Stone, Witmer. (Alaska)
1901. Lucas, F. A. (Fossils)
1901. Osgood, W. H. (Br. Columbia)
1903. Merrill, F. J. H. (U.S.A. and Canada)
1903. Stone, W., and Cram, W. E. (Pop.)
1905. Nordenskjöld, N. O. G. (Antarctic)
1908. Gadow, Hans. (S. Mexico)
1909. Grenfell, W. T. (Labrador)
1909. Seton, E. T. (Manitoba)
1911. Williston, S. W. (Am. Fossils)
1913. Bailey, V. O. (Zoogeog. New Mexico)
1914. Hornaday, W. T. (U.S.A.)
1918. Nelson, E. W.
1920. Buchanan, Angus. (Canada)
1921. Donaldson, A. L. (Adirondacks)

U.S.A. and Canada—General Treatises, *continued.*
1923. Corneau, N. A. (Canada)
1924. Grinnell and Storer.
1924. Meisel, M. (Bib. U.S.A.)
1926. Wetmore, A. (Fossils)
1928. Cormack, W. E. (Newfdland.)
1929. Jordan, D. S. (North-East)
1930. Audubon, J. J. ('Audacious A.')

Birds

1731–43. Catesby, Mark. (N. Am.) (Carolina)
1807. Vieillot, L. J. P.
1808–14. Wilson, Alex.
1827–38. Audubon, J. J. (N. Am.)
1829. Wilson, Alex.
1832. Wilson, Alex. (Bonaparte)
1832–4. Nuttall, T. (U.S. and Can.)
1832–40. Nuttall, Thos. (Canada)
1832–49. Audubon, J. J. (Ornith. Biol.)
1834. Brown, Capt. Thos. (Game)
1835. Brown, Capt. Thos. (Wilson and Bonap.)
1839. Peabody, W. B. O. (Mass.)
(1840). Lichtenstein, M. H. C. (Pacific Coast)
1841. Giraud, J. P. (Texas)
1843. Linsley, J. H. (Conn.)
1844. Giraud, J. P. (L. Isld.)
1844. Giraud, J. P. (N.Y.)
1847–9. Gambel, William. (Calif.)
1852. Hoy, P. R. (Wis.)
1853–6. Cassin, John. (Calif.)
1854. Wilson and Brewer.
1855–9. Heermann, A. L. (S.W.)
1857. Brewer, Thos. M. (Oöl.)
1858. Baird, S. F. (Cat.)
1859–60. Wilson and Bonaparte.
1860. Cassin and Baird.
1864. Lemoine, J. M. (Canada)
1866–9. Elliot, D. G. (N. Am.)
1867–9. Bannister and Dall. (Alaska)
1869. Turnbull, W. P. (Penn.)
1870–80. U.S. Geolog. Explor. (40th Par.)
1871. Ross, A. M. (Canada)
1872. Coues, Elliott. (Key)
1872–81. Maynard, C. J. (U.S.A.)
1874. Brewer, Thos. M.
1874–84. Baird, Brewer, Ridgway.
1874. Coues, Elliott.
1874. U.S. Geog. and Geol. Surveys. (Utah)
1874. Yarrow, H. C. (Utah and Nevada)
1875. Brewer, T. M. (New England)
1875. Snow, F. H. (Kansas)
1876. Sumichrast, F. E. (S.W. Mexico)
1878. Pope, A. (U.S.A.)
1878. Studer, J. H.
1878–80. Coues, Elliott. (Bib.)
1879–86. Jones, H., and N. E. (Oöl. Ohio)
1880. Marsh, O. C. (Paleon.)
?1881–3. Stearns-Coues. (New Eng.)
1882. Brown, N. C. (Maine)
1882. Wheaton, J. M. (Ohio)
1883. Samuels, E. A.
1884. Reid, S. G. (Bermuda)
1886. Capen, E. (Oöl.)
1886–95. Check-list of North Am. Birds. (1–2)
1887. Chamberlain, M. (Cat. Canada)
1887. Ridgway, Robt. (Ill.)
1887. Ridgway, Robt. (Manual)
1889–95. Ridgway, R. (Illinois)
1890. Warren, B. H. (N. Am.)
1890–6. Nehrling, H. (U.S.A.)
1891. Thompson, E. E. (Canada)
1894. McIlwraith, T. (Ont.)
1894. Stone, W. (E. Peru)
1894. Studer, J. H. (N. Am.)
1895–1911. Beal, F. E. L. (Woodpeckers)
1895. Bendire, C. E.
1896. Ridgway, R. (Manual)
1896. Wintle, E. D. (Montreal)
1899. Cory, C. B. (E. N. Am.)
1900. Cooke, W. W. (Colorado)
1900. Palmer, T. S. (Protect.)
1900, 1915. Beal, F. E. L. (Bird Food)
1901–19. Ridgway, R.
1903. Dawson, W. L. (Ohio)
1904. Bruner, L. (Nebr.)
1904. Kermode, F. (Br. Columbia)
1906. Canada, A. P. Low. (Hudson Bay)
1906. Halkett, A. (Hudson Bay)
1909. Cory, C. B. (Ill. and Wis.)
1909. Dawson, W. L. (Wash.)
1910. Check List of N .Am. Birds. (Third A.O.U.)
1910. Cooke, W. W. (Shore birds. Migration)
1910 (1925). Trotter, S.
1910–14. Eaton, E. H. (New York)
1911. Howell, A. H. (Arkansas)
1912. Bent, A. C. (Behring Sea)
1912. Sclater, W. L. (Colorado)
1913. Bailey, H. H. (Va.)
1914. Swarth, H. S. (Arizona)
1916. Kalmbach, E. R. (Economic)
1919. Brimley, H. H. (N. Carolina)
1919. Burns, F. L. (Bib.)
1919. Swenk, M. H. (Neb.)
1919. Taverner, P. A. (Que.)
1921. Dawson, W. L. (Calif.)
1925. Brooks and Swarth. (Br. Col.)
1925. Coues, E. (Key)
1927. Chapman, Frank M.
1927. Henderson, Junius. (Econ. Ornith.)
1927. Hoffmann, R. (Pacific States)
1927–9. Bent, A. C. (Limicolae)
1928. Sutton, Geo. M. (Penn.)
1929. Bready, M. B. (Starling)
1929. Friedmann, Herbert. (Cowbirds)
1929. Hantzsch, B. (Labrador)
1930. Brasher, Rex. (Atlas)

Mammals

1825. Harlan, Richard. (U.S.A.)
1846. Audubon and Bachman. (U.S.A.)
1857–9. Baird, S. F. (Survey)
1859. Baird, S. F.
1862. Wied-Neuwied, Max. (N. Am.)
1864. Allen, H. (Bats)
1869. Allen, J. A. (Mass.)
1874. Scammon, C. M. (N.W. Coast)
1877. Caton, J. D. (Antelope and Deer)
1877. Coues, E. (Mustelidae)
1880. Allen, J. A. (Pinnipeds)
1886. Elliott, H. W. (Alaska)
1886. Roosevelt, T. (Game)

U.S.A. and Canada—Mammals, *continued.*

1887. Nelson and True. (Alaska)
1892. Herrick, C. L. (Minn.)
1893. Roosevelt, T. (Big Game)
1898–9. Jordan, D. S. (Seals)
1901. Elliot, D. G. (U.S.A.)
1902. Roosevelt, Theodore. (Deer)
1904. Hornaday, W. T.
1905. Elliot, D. G. (Check List)
1905. Roosevelt, T. (Game)
1908. Stone, Witmer. (New Jersey)
1909. Bangs, Outram. (Labrador)
1910. Warren, E. R. (N. Am.)
1912. Cory, C. B. (Ill. and Wis.)
1912. Miller, G. S. (U.S.A. List)
1913. Dugmore, A. R. (Newfoundland)
1914. Dugmore, A. R. (Beaver)
1917. Anthony, H. E.
1918. Stoner, D. (Iowa)
1922. Stone, Witmar.
1928. Anthony, H. E.

Fishes

1820. Rafinesque, C. S. (U.S.A.)
1833. Smith, J. V. C. (Mass.)
1839. Storer, D. A. (New England)
1846. Storer, D. A.
1849. Herbert, W. R. (U.S.A.)
1852. Perley, M. H. (New Brunswick)
1861. Gill, T. N. (East Coast)
1866. Knight, T. F. (Nova Scotia)
1873. Gill, T. N. (Bib.)
1876. Brown, J. J. (U.S.A.)
1879. Kilbourne and Goode. (Game)
1882. Jordan, D. S. (Ohio)
1883. Smith, J. V. C. (Mass.)
1884. United States, Bureau of Fisheries.
1890. Newberry, J. S. (Fossil. N. Am.)
1896–1900. Jordan and Evermann. (N. and Cent. Am.)
1899. Rafinesque, C. S. (Ohio)
1900–29. Rhode Island Comm. (Report)
1903. Goode, G. B.
1903. Holder, C. F. (Big Game)
1905. Jordan, D. S. (U.S.A.)
1907. Eastman, C. R. (Fossils)
1927. Cahn, A. R. (Wisc.)
1928. Southard, C. Z. (Trout)
1929. Breder, C. M. (Atlantic)

Reptiles and Amphibia

1827. Harlan, Richard. (U.S.A.)
1839. Humphrey, David. (U.S.A.)
1842. Holbrook, John Edwards.
1852. Baird and Girard. (Utah)
1868. Cope, E. D. (Paleon. N.J.)
1876. Cope, E. D. (Cat.)
1889. Cope, E. D. (Batr.)
1896. Cope, E. D. (Zoogeog.)
1897. Van Denburgh, J. (Pacific Coast)
1900. Cope, E. D.
1907. Fowler, H. W. (New Jersey)
1908. Hay, O. P. (Fossil Turtles)
1917. Stejneger and Barbour.
1922. Van Denburgh, J.
1930. Bailey, Vernon. (Yellowstone)

South America

General Treatises

1590. Acosta, José d'.
1633. Marcgrav, George Johan de Laet.
1648. Laet, J. de. (Brazil)
1769. Bancroft, E. (Guiana)
1773. Banks, Sir J. (Voy.)
1782. Molina, G. I. (Chile)
1805. Azara, F. de
1809. de Azara and Sonnini.
1815–21. Wied-Neuwied, Prince Max. (Voy. Brazil)
1817–35. Natterer, Johann. (Brazil)
1820–5. Mikan, J. C. (Brazil)
1822. Thunberg, C. P. (Dutch Guiana)
1822–31. Wied-Neuwied, Prince. (Brazil)
1823. Thunberg, C. P. (Brazil)
1823. Thunberg, C. P. (Fr. Guiana)
1823–31. Martius, Ch. F. P. (Brazil)
1834. Webster, W. H. B. ('Chanticleer' Voy.)
1835–47. d'Orbigny, A. D.
1842. U.S. Explor. Exped. (Wilkes)
1844–6. Tschudi, J. J. von. (Peru)
1844–71. Gay, Claude. (Chile)
1847. de Castelnau, Francis.
1847–8. Schomburgk, M. R. (Br. Guiana)
1849–52. Gilliss, J. M. (Naval Exped.)
1850–9. Castelnau, F. L. de L. de. (Tr.)
1853. Wallace, A. R. (Amazons)
1855. U.S. Naval Exped.
1863. Bates, H. W.
1870. Wallace, A. R. (Amazons)
1872. Hudson, W. H. (Argentine)
1875–80. Burmeister, C. H. (Argentine)
1879. Waterton, Chas. (Tr.)
1881. Doering, A. (Patagonia)
1881. Günther, A. C. L. G. (Magellan)
1885–91. Mission du Cap Horn. (Voy.)
1887. Ball, J. (Tr.)
1888. Fernando de Noronha. (Brazil)
1888. White, C. A. (Paleon.)
1892. Hudson, W. H. (La Plata)
1894. Rodway, J. (Br. Guiana)
1900. Buerger, O. (Tr.)
1901–10. Princeton Exped. (Patagonia)
1901–13. Belg. Exped. Antarc. (South Pole)
1902. Br. Mus. (Nat. Hist.) (Voy. 'Southern Cross')
1902–3. 'Gauss.' (South Pole Exped.)
1904. André, Eugène. (Guiana)
1907. Sao Paulo Museo. (Cat. Brazil)
1907–date. Br. Mus. (Nat. Hist.) (Voy. 'Discovery')
1909. David, T. W. E. (Antarctic)
1909. Shackleton, E. H. (Antarctic)
1910–date. Br. Mus. (Nat. Hist.) (Voy. 'Terra Nova')
1920–5. Mikan, J. C. (Brazil)

Birds

1807. Vieillot, L. J. P.
1847. Des Murs, O. (Chile)
1858. Sclater, P. L. (Ant-birds)
1866–9. Sclater and Salvin.
1868. Philippi, R. A. (Chile)

South America—Birds, *continued.*
1870. Sclater, P. L., and Salvin, O. (Curassows)
1871. Pelzeln, A. von. (Brazil)
1873. Sclater, P. L.
1874–82. Taczanowski, W. (Peru)
1878. Sclater and Salvin. (Cent. and S. Am.)
1883. Taczanowski, W. (Ecuador)
1884–6. Taczanowski, W. (Peru)
1885. Jhering, H. von. (Brazil)
1888–9. Sclater and Hudson (Argentina)
1890. Stempelmann, H., and Schulz, F. (Argentine)
1892. James, H. B. (Chile)
1894, 1900. Goeldi, E. A. (Brazil)
1900–06. Goeldi, E. A. (Atlas, Brazil)
1902. Stone, Witmer (Patagonia)
1906. Hellmayr, C. E. (Brazil; Class.)
1907. Crawshay, R. (Tierra del Fuego)
1912–17. Chubb, Chas. (Br. Guiana)
1914. Snethlage, E. (Brazil)
1915–17. Grönvold, H. (Atlas. Game)
1920. Hudson, W. H. (Argentina)
1929. Sturgis, B. B. (Panama)
1930. Laubmann, A. (Argentina)
1930. Palmstruch, J. W. (Gran Chaco Ex.)

Mammals

1802. de Azara, Félix. (S. Am.)
1823. Spix, J. B. (Brazil)
1830. Rengger, Johann R. (Paraquay)
1844–71. Gay, Claude. (Chile)
1880. Gervais and Ameghino. (Fossils)
1914–16. Brazil, Commissão. (Amazon)
1919. Allen, J. A. (Felidae)
1925. Hinton, M. A. C. (Whales)

Fishes

1829–31. Agassiz, Louis. (Brazil)
1835–47. Valenciennes, A. (Voy.)
1893. Eigenmann, C. H.
1899. Smitt, F. A. (Sts. Magellan)
1909. Eigenmann, C. H. (Patagonia)
1912. Eigenmann, C. H. (Br. Guiana)
1913. Angel. (Antarctic)
1917. Evermann and Radcliffe. (Peru)

Reptiles and Amphibia

1824. Spix, J. B. (Brazil)
1847. Bibron, G.
1892. Whymper, C. (Andes)
1899. Nordenskjöld, O. (Sts. Magellan)
1930. Gran Chaco Expedition.

Australasia

General Treatises

1729. Dampier, Wm. (Voy.)
1789. Phillip, A. (Voy.)
1790. White, John. (Voy. N.S.W.)
1793. Meyer, F. A. A. (Voy.)
1794. Shaw, Geo. (Aust.)
1822. Thunberg, K. P. (New Holland)
1827. King, P. P. (W. Aust.)
1834. Bennett, George. (Tr.)
1843. Backhouse, J. (Aust. Colonies)
1843. Diffenbach, E. (N.Z. Tr.)
1843. Gray, J. E. (N.Z.)
1844. Forster, J. R. (Aust.)
1849. Sturt, C. (Exped.)
1855. Taylor, R. (N.Z.)
1860. Bennett, Geo. (Voy.)
1865. Krefft, Gerhard. (Aust.)
1878–90. McCoy, F. (Victoria)
1889. Queensland. (Exped.)
1890–8. Queensland. (Br. New Guinea)
1893. Haeckel, E. (Aust.)
1893. Semon, R. W.
1896. Aflalo, F. G. (Nat. Hist.)
1896. Horn, Wm. A. (Cent. Aust.)
1897. Saville-Kent, W. (Aust.)
1904. Hutton, F. W. (Cat. N.Z.)
1904. Hutton and Drummond. (N.Z.)
1907. Le Souëf, W. H. D.
1909. Chilton, Chas. (N.Z.)
1914. Br. Ass. Ad. Sc. (N.S. Wales)
1923. Leach, J. A. (Aust.)
1924. Banfield, E. J. (Queensland)
1924. Downe, T. E. (N.Z. Game)
1930. Martin, W. (Pop. N.Z.)

Birds

1808. Lewin, J. W. (New Holland)
1838. Lewin, J. W. (N.S.W.)
1840–8. Gould, John. (Aust.)
1848–69. Gould, John. (Aust.)
1865. Gould, John. (Aust. Handbook)
1866–77. Diggles, S. (Aust.)
1871. Hutton, F. W. (N.Z.)
1872–3. Buller, Walter. (N.Z.)
1877. Diggles, S. (Aust.)
1882. Buller, W. L. (N.Z.)
1883. Campbell, A. J. (Oöl. Aust.)
1888. Broinowski, G. J. (Parrots)
1888. Buller, Walter. (N.Z.)
1888. Ramsay, E. P. (Aust.)
1891–8. Sharpe, R. B. (Bower birds)
1899. Hall, R. (Dist.)
1900. Campbell, A. J. (Oöl. Aust.)
1911–28. Mathews, Gregory.
1912–date. (R.) Austr. Ornith. Union. (List)
1923. Leach, J. A. (Aust.)
1926. Seth-Smith, D. (Parrakeets)
1927. Guthrie-Smith, H. (N.Z. Pop.)
1930. Oliver, W. R. B. (N.Z.)

Mammals

1845–63. Gould, John. (Aust.)
1871. Krefft, J. L. G.
1888. Thomas, O. (Marsupials)
1894. Lydekker, R. (Marsup.)
1909. Le Souëf and Lucas.
1914. Haswell, W. A. (N.S.W.)
1923–5. Jones, F. W. (S. Aust.)
1924. Donne, T. E. (N.Z. Game)

Fishes

1872. Hutton and Hector. (N.Z.)
1882. Woods, J. E. T. (N.S.W.)
1896. Hamilton, A. (N.Z.)
1898. Waite, E. R. (N.S. Wales)
1906. Stead, D. G. (Aust.)

Australasia—Fishes, *continued.*

1908. Stead, D. G. (N.S.W.)
1914. McCullough, A. R. (N.S.W.)
1916. Roughley, T. C. (Aust.)

Reptiles and Amphibia

1841. Grey, J. E.
1869. Krefft, J. L. G. (Aust.)
1914. Lucas, A. H. S. (N.S.W.)

Belgium and Holland

General Treatises

1838. Anslijn, N.
1842. de Selys-Longchamps, M. E. (Belg.)
1860–78. Schlegel, H. (Holl.)
1861. Schlegel, Hermann. (Holl.)
1876–94. Dubois, Alphonse. (Belg.)
1897. Maitland, R. T. (Belg.)

Birds

1770–1829. Nozeman, C. (Holl.)
1789–1829. Houttuyn, M. (Holl.)
1822. Anslijn, N. (Holl.)
1851–60. Dubois, Ch. F. (Belg.)
1854. Schlegel, Hermann. (Holl.)
1875. Fallon, F. F. M. (Belg.)
1878. Schlegel, H. (2nd Ed. Holl.)
1897. Albarda, J. H. (Holl.)
1897. Blaauw, F. E. (Holl.)
1903. Buekers, P. G. (Pop.)
1905, 1907. Contreras, M. de. (Belg.)
1908. Snouckaert van Schauburg, R. C. (Holl.)
1928. Van Havre, G. C. M. (Belg.)

Mammals

1880. van Beneden, P. J. (Cetaceans)

China and Japan

General Treatises

1782. Sonnerat, P. (China)
1822–3. Thunberg, C. P. (Japan)
1823. Thunberg, C. P. (China)
1833. Temminck, C. J. (Japan)
1833–50. Siebold, P. F. (Japan)
1856. U.S. Exped. Japan. (Perry)
1858–1900. Schrenk, P. L. von. (Manchuria)
1864. Mouhot, A. H. (Indo-China)
1870. Adams, A. (Tr. Japan)
1870. Swinhoe, R.
1878. Western Yunnan Expedition. (S.W. China)
1892. Pratt, A. E. (China)
1912. Clark and Sowerby. (N. China)
1922–3. Sowerby, A. de C. (Manchuria)

Birds

1871. Gray, G. R. (China)
1877. David and Oustalet. (China)
1882. Blakiston and Preyer. (Japan)
1886. Stejneger, L. H. (Review; Japan)
1890. Seebohm, H. (Japan)
1897. Snow, F. H. (Japan)
1909. Bamberg, O. (China)
1928. Bangs, Outram. (Tibet)
1929. Wilkinson, E. S. (Shanghai)

Mammals

1858–90. Schrenck, P. L. von. (Manchuria)
1913. Wallace, H. F. (Game)
1929. Roosevelt, T.

Fishes

1911–date. Tanaka, S. (Japan)
1913. Jordan, D. S., and others. (Japan)

Reptiles and Amphibia

1907. Stejneger, L. H. (Japan)
1925. Mell, R. (China)

Egypt, Syria, and Palestine

General Treatises

1812. Saint-Hilaire, E. G. *et al.* (Description d'Égypte)
1828–45. Ehrenberg and Hemprich. (Egypt)
1841. Kitto, J. (Palestine)
1856–69. Tchihatcheff, P. de. (Asia Minor)
1865. Tristram, Canon H. B. (Palestine)
1873. Salvadori, T. A. (Red Sea)
1884. Tristram, Canon. (Palestine)
1905. Gaillard and Daressy. (Egypt. Mummy)

Birds

1809. Savigny, M. J. C. L. de.
1852. U.S. Exped. Palestine. (Cassin)
1872. Shelley, G. E. (Egypt)
1883. Audouin, J. V. (Egypt. Syria)
1912. Nicoll, M. J. (Egypt)
1925. Brooksbank, F. H. (Egypt)

Fishes

1887. Davis, J. W. (Syria, fossil)
1921. Flower, S. S. (Egypt)

France and Switzerland

General Treatises

1680. Wagner, J. J. (Switz.)
1737. de Plantade, F. (France)
1820–3. Vieillot, L. J. P. (France)
1821–date. Mém. Soc. d'Hist. Nat. (Geneva)
1826. Risso, A. (S. France)
1837. Schinz, H. R. (Swiss)
1844. Crespon, J. (France)
1850. Gervais, Paul. (France)
1861–4. Companyo, Louis. (S. France)
1863–7. Ogérien. (Jura)
1869. Fatio, V. (Switz.)
1873. Pichot, P. A. (Paris)
1882. Réguis, J. F. M. (S. France)
1888–97. Gadeau de Kerville. (Normandy)
1896–1900. Aclogue, A. (France)
1910. Francé, R. H. (Alps)

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France and Switzerland, *continued.*

Birds

1815. Meisner and Schinz. (Switz.)
1825–30. Roux, J. L. F. P. (S. France)
1840. Crespon, J. (S. France)
1843–4. Bouteille and Labatie. (France)
1849. Degland, C. D. (France)
1859–6. Jaubert and Barthelemy-Lapommeraye. (France)
1864. Necker, L. A. (Switz.)
1876. Stölker, C. (Switz.)
1889. Fatio and Studer. (Switz.)
1892. Studer, T., and Fatio, V. (Cat. Switz.)
1897. Ternier, L. (France)
1899. Paquet, René. (France)
1909. Ménégaux, H. A. (France)
1916. Studer, T.

Mammals

1837. Schinz, H. R. (Swiss)

Fishes

1810. Risso, A. (S. France)
1866. Blanchard, C. E. (France)

Reptiles and Amphibia

1910. Boulenger, G. A. (France. Batr.)

Germany and Middle Europe

General Treatises

1721. Rzaczynski, Gabriel. (Poland)
1726. Marsigli, L. F. (Danube)
1786–8. Scopoli, G. A. (Austria)
1797–1828. Koch and Sturm. (Ger.)
1816. Koch, C. L. (Bavaria)
1830–5. Reider and Hahn. (Bavaria)
1834–7. Lorek, C. J. (N. Ger.)
1837–9. Reichenbach, H. G. L. (Ger.)
1840. Koch and Fuernrohr. (Bavaria)
1840. Zawadzki, A. (Poland)
1882–3. Müller, A. and C. (Ger.)
1897. Blasius, R. (Brunswick)
1900. Budapest Fauna. (Hung.)
1927–9. Dahl, F. T. (N. and Cent. Europe)
1928. Thienemann, J. R. (Station)
1929. Brohmer, P. (Geog.)

Birds

1734–63. Frisch, J. L. (Ger.)
1797–1808. Naumann, J. A. (Ger.)
1800–11. Borkhausen, M. B. (Ger.)
1805–21. Wolf and Meyer. (Ger.)
1810–22. Wolf and Meyer. (Ger.)
1818–28. Naumann and Buhle. (Ger. Oöl.)
1820–44. Naumann, J. A. (Ger.)
1825–9. Roux, J. L. F. P. (Mid. Eur.)
1831. Brehm, C. L. (Ger.)
1833. Gloger, C. W. L. (Ger.)
1837–53. Zander, H. D. F. (Ger.)
1853–4. Bailly, J. B. (Savoy)
1860. Naumann-Blasius. (Ger.)
1869. Borggreve, Bernard. (N. Ger.)
1869. Droste-Huelshoff, F. von. (Cent. Eur.)
1871. Koch, G. von. (Ger.)
1874. Willibald, E. (Oöl.)
1876. Riesenthal, O. (Cent. Eur.)
1877. Homeyer, Eugen von. (Ger.)
1877. Tschusi-Schmidhoffen, V. von. (Tyrol.)
1878. Schmidhoffen, V. von Tschusi. (Bib. Aust.-Hung.)
? 1882–4. Reichenow, A. (Ger.)
1890. Keller, F. C. (Carinthia)
1891. Jaeckel, A. J. (Bavaria)
1897–1905. Naumann, J. A. (Ger.)
1899–1903. Madarász, G. (Hung.)
1900. Wuestnei, Carl. (Mecklenburg)
1909. Suolahti, H. (Ger.)
1912. Dahl, C. F. T. (Mid. Eur.)
1912. Rey, E. (Mid. Eur.)

Mammals

1833. Gloger, C. W. L. (N. Ger.)
1857. Blasius, J. H. (Ger.)
1869. Stralsund Museum. (Ger.)

Fishes

1863. Siebold, C. T. E. von. (Mid. Eur.)
1870. Weber, J. C. (Mid. Eur.)
1909. Grote, W. (Cent. Eur.)
1909. Vogt, C. (Mid. Eur.)

Reptiles and Amphibia

1799–1805. Wolf, Johann. (Ger.)
1896. Fraas, E. (Mid. Eur. Paleon.)
1897. Dürigen, Br. (Ger.)
1913. Sternfeld, R. (Mid. Eur.)

Great Britain

General Treatises

1496. Berners, Juliana. (Reprint, 1810)
1662. Childrey, Joshua.
1666. Merrett, C.
1674. Ray, J. (Cat.)
1677. Boate, Gerard. (Ireland)
1677. Plot, Robt.
1684. Sibbald, Robt. (Scotland)
1686. Plot, Robt.
1700. Leigh, Chas.
1766. Pennant, T.
1769. Berkenhout, J.
1789. White, Gilbert. (Selborne)
1797. Bewick, T.
1807. Turton, W.
1813. Low, Geo. (Orkneys)
1820. Donovan, E.
1828. Fleming, Dr. John.
1835. Jenyns (Blomefield).
1838–44. Couch, Jonathan. (Cornwall)
1846. Forbes, Edward. (Geog. G.B.)
1849–56. Thompson, William. (Ireland)
1854. Morris, J. (Fossils)
1879. Lubbock, R. (Norfolk)
1880. Patterson, Robt. L. (Ireland)
1891. Buckley and Harvie-Brown.
1898. Aflalo, F. G.
1899. Evans and Buckley. (Shetlands)

Great Britain—General Treatises, *continued.*

1903–4. Woburn Library. (G.B. Serials)
1907. Forrest, H. E. (North Wales)
1910–13. Andrews, C. W. (G.B. Paleon.)
1911. Evans, A. H. (Tweed Area)
1926. Grey, Viscount, of Fallodon.
1929. Batten, H. M.

Birds

1460. Dame Berners. (Hawking)
1666. Merrett, C.
1737. Albin, E. (Song-birds)
1773. Pennant, Thos. (G.B. Class.)
1788–9. Walcott, John.
1789–94. Lewin, William.
1791. Lord, Thos.
1811–21. Graves, George.
1815–22. Hunt, John.
1816. Graves, George. (Oöl.)
1820. Atkinson, J.
1821–34. Selby, P. J. (Col. Atlas)
1822. Müller, H. C. (Faeroes)
1823. Syme, P. (Song-birds)
1825–33. Selby, P. J.
1835–50. Meÿer, H. L. (G.B. Atlas)
1836. Eyton, T. C.
1836. Wood, Neville. (Song-birds)
1837–43. Yarrell, W.
1837–52. Macgillivray, W.
1837–85. Yarrell, W. (4 eds.)
1839. Beilby, R. (Land-birds)
1843. Meÿer, H. L.
1845. Bolton, J.
1846. Macgillivray, Wm.
1851–7. Morris, F. O.
1853. Watters, J. J. (Ireland)
1853–6. Morris, F. O.
1855. Morris, R. R.
1856. Hewitson, W. C. (Oöl.)
1858. Laishley, R. (Oöl.)
1861. Atkinson, J. C. (Oöl.)
1861. Newman, E. (Oöl.)
1863. Gray, G. R. (Cat.)
1869. Sterland, W. J. (Sherwood Forest)
1870. Seeley, H. G. (Fossils)
1873. Salvin and Brodrick. (Falconry)
1874. Saxby, H. L. (Shetland)
1877. Wharton, H. T.
1879. Beckwith, W. E. (Shropshire)
1879. Moore, G. P. (Geog. Dist.)
1880. Butler, A. G. (Oöl.)
1880. Tunstall, M.
1881–7. Booth, E. T.
1883–5. Seebohm, H. (Oöl.)
1885. Lilford, Lord. (Atlas)
1892. Pigott, T. D. (London)
1892–4. Swann, H. K. (London)
1895–6. Poynting, F. (Oöl.)
1896. Mosley, S. L.
1896. Seebohm, H. (Oöl.)
1896. Swann, H. K.
1897. Marchant and Watkins. (Protection)
1898. Duncan, John.
1899. Saunders, H. (Manual)
1900. Ussher and Warren. (Ireland)
1901. Selous, E. (Bird watching)
1902. Millais, J. G.
1906–11. Stonham, Chas.
1907. Balston, R. J. (Kent)
1907. Nelson, T. H. (Yorkshire)
1907–14. Howard, H. E. (Warblers)
1909. Birchley, S. W. (Cage)
1913. Collinge, W. E. (Food)
1913. Swann, H. K. (Dict.)
1915. Br. Ornith. Union. (List)
1922. Massingham, H. J. (Pop.)
1923. Coward, T. A. (Pop.)
1930. Stonham, Chas.

Mammals

1809. Bingley, Wm. (Pop.)
1815. Anonymous. (Pop.)
1828. Fleming, J.
1837. Bell, Thomas.
1863. Rowe, J. B. (Devon)
1876. Alston, E. R. (Scotland)
1892. Evans, Wm. (Scotland)
1895. Lydekker, R.
1899. Lee, R. B. (Dogs)
1903. Johnston, Sir Harry H.
1904–6. Millais, J. G.
1927. Westell, W. P. (Pop.)
1928–30. Batten, H. M. (Pop.)

Fishes

1760. Lhuyd, E. (Fossils)
1802–1808. Donovan, E.
1822. Walton and Cotton. (Complete Angler)
1835–6. Yarrell, Wm.
1836–59. Yarrell, W. (3 eds.)
(1839). Jardine, W. (Salmonidae)
1859. Yarrell, Wm. (3rd ed.)
1862–5. Couch, Jonathan.
1865. Bertram, J. G. (Pop.)
1875. McIntosh, W. C. (Scotland)
1876. Walton, Izaak. (Compleat Angler)
1877. Couch, J.
1879. Houghton, Wm.
1880. Berners, Dame Juliana. (Reprint, 1496)
1880–4. Day, F.
1881. Patterson, R. L. (Ireland)
1886. Cholmondeley-Pennell, H.
1896. Cunningham, J. T.
1904. Aflalo, F. G.
1904. Maxwell, H. E.

Reptiles and Amphibia

1837. Bell, T.
1839. Bell, Thomas.
1928. Westell, W. P. (Pop.)

India and Ceylon

General Treatises

1781. Forster, J. R. (India)
1790. Pennant, T. (India)
1805. Percival, R. (Ceylon)
1830–5. Gray, J. E. (India)
1830–4. Hardwicke and Gray. (Atlas)
1834. Bélanger, Charles. (Voy. India)

India and Ceylon—General Treatises, *continued.*

1846–9. Falconer, Hugh. (Fossils, India)
1850. Mason, F. (Burma)
1852. Kelaart, E. F. (Ceylon)
1860. Mason, F. (Burma)
1861. Tennent, J. E. (Ceylon)
1875. Blyth, E. (Burma)
1877. Baldwin, J. H. (Game, Bengal)
1884. Murray, Jas. A. (India)
1888. Blanford and Oates. (Br. India)
1888. 'Ilaju'l-bahā'im. (Hindustani lith.)
1892. Alcock, A. W. (Tr., India)
1903–date. Spolia Zeylanica. (Ceylon, Period.)
1906. Dewar, D. (Br. India)
1920. Hingston, R. W. G. (Himalayas)
1929. Wood, Casey A. (Ceylon)

Birds

1825. Butler, E. A. (Bombay)
1847. Jerdon, T. C. (India)
1862–4. Jerdon, T. C. (Br. India)
1873–5. Hume, Allan. (Oöl., India)
1877. Holdsworth, E. W. H. (Ceylon)
(1878–80). Hume and Marshall. (Game)
1878–80. Legge, W. V. (Ceylon)
1883. Oates, E. W. (Burma)
1885. Barnes, H. E. (Bombay)
1887–8. Murray, Jas. A. (India)
1888. Le Messurier, A. (Game)
1889–90. Hume, A. O. (Oöl.)
1890. Reid, Geo. (Cat. India)
1901. Finn, F. (Cat. India)
1908. Baker, E. C. S. (India, Ducks)
1913. Baker, E. C. S. (Pigeons and Doves)
1913. Dewar, D. (India)
? 1922–date. Baker, E. C. S. (Br. India)
1925. Wait, H. (Ceylon)
1927–9. Wait and Henry. (Atlas, Ceylon)

Mammals

1794. Faras-nāma. (Persian MS.)
1812. Tibb-i-aspān. (India, Hind. MS.)
1839. Ogilby, W. (Himalayas)
1867. Jerdon, T. C. (India)
1867. Tennent, J. E. (Ceylon elephant)
1874. Jerdon, T. C. (India)
1877. Baldwin, J. H. (Bengal and N.W. India)
1884. Sterndale, R. A. (Ceylon, India)
1888–91. Blanford, W. T. (Br. India)
1923. Brander, A. A. D. (India)

Fishes

1803. Russell, P.
1822. Buchanan (Hamilton). (Ganges)
1841. Bennett, J. W. (Ceylon)
1862–78. Bleeker, P. (Atlas, Dutch Indies.)
1889. Day, F. (India)
1899. Alcock, A. W. (Calcutta Museum)
1902. Alcock, A. W. (Voy.)

Reptiles and Amphibia

1796. Russell, P. (Snakes)
1812. Sinhalese, Ola. (Sinhalese MS.)
1864. Günther, A. C. L. (Br. India)
1872. Fayrer, J. (Snakes)
1876. Theobald, W. (Br. India)
1888. Boulenger, G. A. (Br. India)
1921. Wall, F. (Ceylon)

Italy and Southern Europe

General Treatises

1674. Boccone, P. (or S.). (Sicily)
1783–4. Cetti, F. (Sardinia)
1829–86. Costa, O. G. (Sicily)
1832–5. Bory de Saint-Vincent, J. B. G. M. (S. Eur.)
1832–42. Bonaparte, Lucien. (Italy)
1847. Renier, S. A. (Adriatic)
1870–4. Cornalia, E. (Italy)
1878–80. Camerano, L. (Italy)
1880. Giglioli, E. H. (Italy)
1911–date. Dehaut, E. G. (Sardinia)

Birds

1776. Cetti, F. (Sardinia)
1827–31. Savi, P. (Tuscany)
1828. Giglioli, E. H. (Italy)
1840. Benoit, Luigi. (Sicily)
1842. Cara, G. (Sardinia)
1843. Malherbe, A. (Sicily)
1843. Schembri, A. (Malta)
1845. Monti, M. (Italy)
1860. Lindermayer, A. (Greece)
1864. Salvadori, Count. (Sardinia)
1871. Salvadori, T. (Italy)
1879–94. Manzella, A. (Atlas, Italy)
1886–91. Savi, P. (Italy)
1890. Bühler, Capt. (Balkans)
1895. Irby, L. H. L. (Gibraltar)
1895. Motorelli, G. (Sardinia)
1900. Gaal de Gyula, G. (Migr.)
1906. Brusine, S. (Balkans)
1920. Stresemann, E. (Greece)
1927. Craveri, M. (Italy)
1929. Arrigoni degli Oddi (Italy)

Mammals

1774. Cetti, F. (Sardinia)
1777. Cetti, F. (Sardinia)

Fishes

1524–7. Giovio, Paolo. (Italy)
1777. Cetti, F. (Sardinia)
1883. Faber, G. L. (Adriatic)
1894. Gourret, P. (Medit.)
1916. Supino, F. (Italy)

Reptiles and Amphibia

1774. Cetti, F. (Sardinia)
1874. Betta, F. E. de. (Italy)
1911. Griffini, A. (Italy)

Malaysia, Borneo and Philippines

General Treatises

1707. Sloane, Hans. (E. Indies)
1776. Sonnerat, P. (Papua)
1782. Sonnerat, P. (E. Indies)
1817. Raffles, Stamford. (Java)
1821. Horsfield, Thos. (Java)
1824. Horsfield, Thos. (Java)
1839–44. Müller, S. and Schlegel, H. (Dutch E. Indies)
1839–45. Temminck, C. J. (Dutch E. Indies)
1855. Motley and Dillwyn. (Labuan)
1869. Wallace, A. R. (Malaysia)
1887. Snelleman, J. F.
1889. Hickson, S. J. (Celebes)
1890–7. Weber, Max. C. W. (E.I. Tr.)
1893. Semon, R. W. (Malaysia)
1893. Whitehead, J. (North Borneo)
1894. Büttikofer, J. (E. Indies)
1894. Worcester and Bourns. (Philippines)
1903–7. Annandale and Robinson. (Malaysia)
1906–date. Wichmann, C. E. A. (New Guinea)
1914. Haniël, Curt B. (Malaysia)
1914–16. Grant, W. R. O. (Dutch New Guinea)
1926. Wells, Carveth. (Malay.)
1927. Enriquez, C. M. D.

Birds

1822. Horsfield, Thos. (Java)
(1835). Havell, R. (Paradise)
1863. Schlegel, H. (Dutch E. Indies)
1880. Burbidge, F. W. (Borneo)
1882–91. Salvadori, T. A. (Papua)
1884. Blasius, W. (Celebes)
1889. Hickson, S. J. (Celebes)
1891–8. Sharpe, R. B. (Paradise)
1898. Meyer and Wiggles-worth. (Celebes)
1906. McGregor and Worcester. (Philippines)
1927. Bucknill and Chasen. (Singapore)
1929. Robinson, H. C. (Malaysia)

Mammals

1832. Sykes, W. H.
1890. Steere, J. B. (Philippines)
1893. Hose, Chas. (Borneo)
1912. Hollister, N. (Philippines)
1924. Mayer, C.

Fishes

1705. Rumpf, G. E.
1862–72. Bleeker, P. (Dutch E. Indies)
1906–30. Wichmann, C. E. A. (New Guinea)
1911–28. Weber and Beaufort. (Indo.-Aust.)
1920. Gilbert, C. H. (Philippines)

Reptiles and Amphibia

1906–30. Wichmann, C. E. A. (New Guinea, Amphibia)
1906–30. Wichmann, C. E. A. (New Guinea, Reptiles)
1915–17. Rooij, N. de. (Indo.-Aust.)
1916. Gyldenstolpe, N. (Siam)

Oceania and the South Seas

General Treatises

1773. Banks, J. (Voy.)
1776. Sonnerat, P. (Voy.)
1784. Cook, Captain Thos. (Voy.)
1822. Thunberg, C. P. (Aust.)
1867. Hartlaub and Finsch. (Cent. Polyn.)
1875. Sharpe, R. B. (Oceania)
1877. Streets, T. H. (Hawaii)
1879. Roy. Soc. London. (Kerguelen Isld.)
1879. Roy. Soc. London. (Rodriguez)
1893. Semon, R. W. (Oceania)
1897. Saville-Kent, W. (Tr.)
1898–1902. Willey, A. (Exped.)
1900. Andrews, C. W. (Christmas Isld.)
1916. Shelford, R. W. C.

Birds

1859. Gray, G. R.
1865. Gould, John.
1867. Finsch and Hartlaub. (Polyn.)
1880–91. Salvadori, T. (Papuasia)
1881. Gould, John. (New Guin.)
1884. Wilson and Evans. (Hawaii)
1888. Buller, Walter. (N.Z.)
1890–9. Evans, A. H. (Hawaii)
1890–9. Wilson, S. B. (Hawaii)
1891. Wigglesworth, L. W. (Polyn.)
1893–1900. Rothschild, L. W. (Hawaii)
1901. Bryan, W. A. (Hawaii)
1902. Henshaw, H. W. (Hawaii)
1906. Worcester and McGregor. (Phil. Islds.)
1913. Sarasin, F.
1925–6. Wood and Wetmore. (Fiji)
1928. Mathews, Gregory. (Norfolk Isld.)

Mammals

1859. Gray, J. E. (New Guinea)
1900. Andrews, C. W. (Christmas Isld.)

Fishes

1873–1910. Guenther, A. (South Seas)
1905. Jordan and Evermann. (Hawaii)
1906. Jordan and Searle. (Samoa)
1911–28. Weber and Beaufort. (Indo.-Aust.)
1926. Douglas and Johnson. (South Seas)

Russian Empire

General Treatises

1556. von Herbertstein, Sig. (Russ.)
1770–84. Gmelin, J. F. (Russ.)
1771–76. Pallas, P. S. (Tr.)
1774–80. Pallas, P. S. (Russ.)
1829. Humboldt, Alex. (Russ. Tr.)
1831. Pallas, P. S. (Zoogeog.)
1834–8. von Eichwald, C. E. (Tr. Caucasus)
1840–2. Demīdov, Prince. (Tr. So. Russ.)

Russian Empire—General Treatises, *continued.*
1842. Pallas, Peter. (As. Russ.)
1847–75. von Middendorf, A. T. (Siberia)
1852–68. von Eichwald, C. E. (Russ. Paleon.)
1856. von Hofmann, Ernst. (Russ.-Asia)
1858–1900. von Schrenck, P. L. (Russ.-Asia)
1862. Radde, G. (S.E. Siberia)
1873. Syevertzov, N. A. (Dist. Turkestan)
1880. Seebohm, H. (N.E. Russ.)
1882. Seebohm, H. (Siberia)
1899. Pearson, H. J. (N. Russ.)
1906. Lönnberg, E.
1921. Syevertzov, N. A. (Trans. Russ.)

Birds

1879. Bogdanov, M. N. (Caucasus)
1884. Radde, G. F. R. (Caucasus)
1884. Bogdanow, M. N. (Empire)
1887. Lorenz, Th. (Caucasus)
1887. Palmén, J. A. (Siberia)
1888–91. Pleske, T. D. (Empire)
1894. Reiser, Othmar. (Balkans)
1897. Somow, N. N. (Kharkow)
1907. Byal-Birulya, A. A. (Siberia)

Mammals

1766. Pallas, P. S.

Fishes

1856. Pander, C. H. (Russ. fossils)

Reptiles and Amphibia

1881–83. Kiprijanoff, W.

Scandinavia and Northern Europe

General Treatises

1746. Linnaeus, C. (Sweden)
1755. Pontoppidan, E. L. (Norway)
1758. Horrebov, Niels. (Iceland)
1780. Fabricius, O. (Greenland)
1788–1806. Müller, O. F. (Scand.)
1791. Fischer, J. B. (Livland)
1800. Retzius, A. J. (Sweden)
1806. Quensel, Conrad. (Sweden)
1806–9. Palmstruch, J. W. (Sweden)
1820–55. Nilsson, Sven. (Scand.)
1823. Thunberg, C. P. (Sweden)
1832–50. Voyage en Islande. (Iceland)
1835–6. Gaimard, Paul. (Voy. N. Eur.)
1838. Reinhardt, J. C. H. (Greenland)
1842–4. 'Recherche' (Voy. N. Eur.)
1846. Holböll, C. P. (Greenland)
1846–77. Koren, J. (Norway)
1846–77. Sars, Michael. (Geog. Norway)
1854. Lloyd, L. (Scand.)
1858. Nilsson, S. (Scand.)
1862. Baring-Gould, S. (Iceland)
1865. Wheelwright, H. W. (Scand.)
1869. Bowden, John. (Norway)
1871. Wheelwright, H. W. (Lapland)
1873–4. Bremen. Geog. Gesell. (North Pole)
1878–1907. Schiödte, J. C. (Den.)
1879. Kinberg, J. G. H. (Oöl.)
1895. Trevor-Battye, A. B. R. (Arctic)
1900–date. Roemer and Schaudinn. (Arctic)
1903. Kennedy, E. B. (Scand.)
1907–date. Danmarks Fauna. (Den.)
1909. Mela, A. J. (In Finnish)
1910. Dahl, Svend. (Danish Zool. Dict.)

Birds

1764. Brunnich, M. T. (Scand.)
1787. Heerkens, G. H. (Frisian Islds.)
1792. Beseke, J. M. (Courland)
1822. Faber, F. (Iceland)
1828. Walter, J. E. C. (Scand.)
1846. Holböll, C. P. (Greenland)
1847. Wright, M. (Finland)
1851–6. Kjaerbølling, Niels. (Den.)
1856–73. Sundevall, C. J. (Sweden)
1859. Wheelwright, H. W. (Scand.)
1864. Collett, R. (Norway)
1866–75. Holmgren, A. E. (Scand.)
1867–71. Widegren, H. (Pop.)
1868–71. Collett, R. (Norway)
1873. Palmén, J. A. (Finland)
1873. Wright, M. von. (Finland)
1874. Ringius, G. E. (Scand.)
1879–88. Sundman, G. and Palmén, J. (Finland)
1886. Sundström, C. R. (Sweden)
1895. Gätke, H. (Heligoland)
1895. Loewis, O. von. (Song-birds)
1898. Winge, H. (Greenland)
1898–1902. Kolthoff and Jägerskiöld. (Norway)
1901. Slater, H. H. (Iceland)
1902–3. Dresser, H. E. (Palearctic)
1911. Koenig, A. F.
1911–26. Jägerskiöld and Kolthoff. (Norway)
1911. Shackleton, E. (Antarctic)
1917–29. Wright-Lönnberg. (Sweden)
1926. Kolthoff, G. I.
? 1926–date. Schiøler, E. L. (Den.)
1929. Hartling, Ivar. (Finland)
1930. Molineux, H. G. K. (Palearctic.)

Mammals

1823. Scoresby, W. (Whales, Greenland)
1866. Lilljeborg, W. (Scand.)
1902. Winge, H. (Greenland)

Fishes

1624. Schonevelde, S. (N. Eur.)
1835. Ekström, C. U. (Sweden)
1844. Ørsted, A. S.
1846–56. Sars and others. (Scand.)
1862. Widegren, H. (Sweden)
1875. Lütken, C. (Greenland)
1883–93. Reuter and Mela. (Finland)
1891. Lilljeborg, W. (Scand.)
1892–5. Fries and others. (Scand.)
1892–5. von Wright, W. (Scand.)
1894. Vaillant, L. (Arctic)
1895. Stuxberg, A. (Scand.)
1918. Green, Neal. (North Sea)
1920. Schager, C. H. (Sweden)

Spain and Portugal

General Treatises

1817–19. Blanchard, Pedro. (Portugal)
1856. Rosenhauer, W. G. (Spain)

Birds

1869. Barboza du Bocage, J. V. (Portugal)
1870. Smith, A. C. (Portugal)
1875. Irby, L. H. L. (Gibraltar)
1888. Irby, L. H. L. (Gibraltar)
1909. Veiner, Willoughby. (Spain)
1924. Tait, W. C. (Portugal)

Mammals

1903–30. Madrid. See *Memorias* and *Boletin* of the *R. Soc. Esp. de Historia natural.* (Spain and Port.)

Fishes

1866. Capello, F. de B. (Portugal)
1868. Barceló y Combis, F. (Spain)
1870. Comisión permanente de pesca. (Spain)
1897–8. Sauvage, H. E. (Port. Pal.)

Reptiles

1876. Barceló y Combis, F. (Spain)
1903–30. Soc. Esp. de Hist. Nat. (Memorias)
1898. Sauvage, H. E. (Paleont. Port.)

C. A PARTIALLY ANNOTATED CATALOGUE OF THE TITLES ON VERTEBRATE ZOOLOGY IN THE LIBRARIES OF McGILL UNIVERSITY.

THIS section is essentially an *author's catalogue*, chronologically arranged. In the absence of any name entitled to authorship, real or assumed, in the work under inspection, the title is listed under the caption 'Anonymous', with a secondary heading of the first principal word of the title and, when deemed useful, cross references are also given.

Titles of periodicals—those bugbears of the Cataloguer—are generally entered under the name of the particular society or body presumed to be responsible for their issue. In addition a cross reference is made to the ordinary title of the magazine or serial, if this precaution is deemed necessary to assist in finding the publication in question. The same treatment is accorded Expeditions, Surveys, and Explorations by Governments, Societies, Museums, or other bodies.

In most of the Catalogue captions the definite and indefinite adjectives or articles as well as certain prepositions (*de*, *von*, *van*, *d'*, *der*, *di*, *della*, &c.) are ignored.

This Introduction and Catalogue will not notice to any extent elementary college and school text-books on vertebrates. It also passes over lightly the literature of veterinary medicine or surgery, of anthropology, microscopical anatomy, biochemistry, zoological cytology, pathology, physiology, specific morphology, microbiology, experimental biology, experimental psychology, serology, vitalism, Mendelism, and systematic natural philosophy apart from vertebrate zoology. The Compiler knows that all these subjects interest (or should interest) the student but he has at his disposal neither the time nor the space required for more than a partial catalogue and review of their extensive literature.

Although the Introduction and Index of the present volume deal exclusively with the literature of vertebrate zoology, many of the titles herein do not appear to relate to that study. However, it must be remembered that many works apparently covering only botanical, geological, or invertebrate zoological subjects discuss also important topics connected with studies of interest to the investigator in vertebrate zoology.

Following the scheme adopted by the *Cat. Br. Mus.* (*Nat. Hist.*) the word (Wanting) is appended to titles not for the moment in any of the McGill libraries. At the same time it is understood that the items thus indicated are 'on order' and some of them may have, meantime, been acquired by and are actually in one of the collections.

As new treatises, periodicals, &c. on vertebrates are constantly appearing and as unheralded old ones come frequently to light, it follows that many titles will be added to the McGill shelves of which no notice can be taken in the present compilation. In other words the Catalogue in hand is not a complete roster of *all* the vertebrate zoological titles at McGill. Conversely, there are quite a few titles of serials and periodicals introduced not only in the hope of securing them for the various libraries but to inform students and librarians of their existence and importance in a study of the literature of vertebrate zoology. It is the firm purpose of the McGill authorities to secure these (and others) when they appear in the market.

Titles in Arabic, Greek, Russian, Japanese, Chinese, Serbian, and other languages not employing Italian letters, if transliterated, generally follow the rules laid down by the Cataloguers of the British Museum.

It was the original purpose of the Compiler to append notes of evaluation at least to all important and most of the minor publications, but for many reasons this praiseworthy plan had

to be abandoned. However, it is believed that the annotations provided will furnish the student and librarian with a fair idea of the value of the great majority of fundamental treatises.

With the exceptions already noted the (estimated) 20,000 bound and unbound pamphlets, excerpts, separates, reprints, exfoliates, and collections of newspaper and magazine clippings on subjects relating to vertebrate zoology in the McGill libraries, although entered in the card catalogues of the University, are not recorded or evaluated here. Many of these titles may be important contributions to zoological literature—much more important than some of the separately bound volumes—yet there is in the appended list no place for them.

Generally the form and order observed by the authors of the *British Museum* (*Nat. Hist.*) *Catalogue* are followed, but almost as frequently the title-sequences of the Library of Congress are adopted ; there seem to the Compiler to be merit and advantage in both schemes.

When the symbol [O.] occurs it indicates a title in the Osler Library, and that a more complete description of it will be found in the *Bibliotheca Osleriana*. [G.] indicates that it is in the Gest Library of Chinese Literature; the letters [W. I.] indicate that the preceding notes were contributed by Mr. Wladimir Ivanow, formerly assistant curator of Persian Manuscripts at the Imperial Library in St. Petersburg.

The series of asterisks **** that act as substitutes for the name of an author, a country or a magazine, refers to the *first name* of the previous heading.

The Compiler is anxious to repeat that only independent publications are, as a rule, entered in this Catalogue. Separates or reprints of, or excerpts from parts or single volumes of published works (especially from Government, institutional, and Zoological Society journals and serials) are excluded unless they are copies of specially reprinted parts (or 'Authors' editions') and listed as such in a McGill Library card index, and are actually on hand or on order for delivery in the near future.

Of course this rule excludes the listing and notices of much meritorious literature but, unfortunately, lack of space prohibits annotation in this work of many a valuable contribution to the literature of vertebrate zoology.

→ Aagaard, C. J. 1930. The Common Birds of Bangkok. ill. pl. pp. 239. Copenhagen.

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→ Abbey, G. 1909. Balance of nature, practical manual of animal foes and friends... 150 illus.

Abhand. ... Vogelsforschung
→ No. 3. Schüz, E. und Weigold, H.

→ 1886. Upland and meadow. New York.

→ Abhandlungen des Deutschen Seefischerei-Vereins. 1897-1922. Vols. 1-13 (all pub) Berlin.

/N/

CATALOGUE OF TITLES IN McGILL UNIVERSITY LIBRARIES

AARAU. Aargauischen Naturforsch. Gesellschaft.
1878–*date*. Mittheilungen. Vols. 1–17.
A fair example of a German periodical devoted to local zoology.

AARBOG, Bergens Museum. *See* BERGENS MUSEUM.

Aargauische Naturforschende Gesellschaft. *See* AARAU.
1863–*date*. Mittheilungen.

AARSBERETNIGAR OM DANSKE FUGLE. *See* JAHRESBERICHT ÜBER DIE ORNITHOLOGISCHEN BEOBACHTUNGSSTATIONEN IN DÄNEMARK.

AARSBERETNING, Bergens Museum. *See* BERGENS MUSEUM.

Abbildung und Beschreibung Naturhistorischer Gegenstände. 1795–1802. (Wanting.)
Berlin.

ABBOTT, CHARLES CONRAD [1843–1911].
1868. Catalogue of Vertebrate Animals of New Jersey. (Cook's Geology of New Jersey.) *8vo.*
One of the numerous local lists of American fauna; valuable for reference.

1884. A naturalist's rambles about home. *8vo. pp. 485. T. of c. append. index.* *New York.*
These notes—the gatherings of many years—and some of which had already appeared in various magazines—were made by the author whilst residing on the Delaware river near Trenton, N.J. The bird notes are confined to Chapters XII–XXVII, pp. 93–241, whilst the appendix contains a list of the birds to be found in Mercer County, New Jersey, pp. 451–75. A second revised edition appeared in 1887 (q.v.).

1887. A naturalist's rambles about home. 2nd ed. rev. *12mo. pp. (2)+485. T. of c. append. index.* *New York.*
A slight revision of the first edition published in 1884 (q.v.), the changes referring more particularly to the mammals and reptiles, the author stating that he found little to amend in the ornithological Chapters XII–XXVII.

1890. Outings at odd times. *8vo. pp. x+282. T. of c.* *New York.*
In some of the above outings in New Jersey the author records his experience with Owls, Wrens, Snow-birds, Blue Jays, etc.

1894. Travels in a tree-top. *8vo. pp. 215. index.* *Phila.*
A series of popular essays on natural history based on the author's observations in the vicinity of Philadelphia, Pennsylvania.

1895. The birds about us. *8vo. pp. xi+(1)+9–288. front. 23 pl. 50 figs. (1 col.). T. of c. index.* *Phila.*
In the opening pages some of the more characteristic phases of bird-life in general are touched upon, followed by a popular account of the birds themselves as found in North America.

1895. Cyclopedia of Natural History. *illust.*
A brief account of the subject.

ABBOTT, CLINTON GILBERT [1881–].
1911. The home-life of the osprey. Photographed and described by Clinton G. Abbott . . . with some photographs by Howard H. Cleaves. With thirty-two mounted plates. *Sup. 8vo. pp. 54+(2). 32 pl.* *London.*
A detailed account of periodical observations at various nests of the Osprey situated at Atlantic Highlands, New Jersey, Gardiner's Island, N.Y., and elsewhere, illustrated with beautiful photographs. The work forms one of *The Bird-Lover's Home-Life Series.*

1919. Home-life of the Osprey. *4to. pp. 50. 32 photo plates.* *N.Y.*
Another edition.

ABBOTT, FRANCES MATILDA [1857–].
1906. Birds and flowers about Concord, New Hampshire. *12mo. pp. xxi+(3)+140+(1). T. of c. index.* *Concord, N.H.*
An endeavor to bring before other people, especially children, the joy that comes from knowing the common things around us. The birds are dealt with on pages 1–58, followed by a list of those seen by the author about Concord (110), and those seen by other observers (91), pp. 59–74.

ABEL, OTHENIO [1875–].
1919. Die Stämme der Wirbelthiere. (Wanting.)
A fundamental source of information on the origin and chief characters of vertebrates. A complete account of the amphibia will be found here.

1922. Lebensbilder aus der Vorzeit. *Jena.*

1926. Amerikafahrt. *Jena.*

ABHANDLUNGEN AUS D. GEBIETE DER VOGELZUGFORSCHUNG. *See* No. 1. WEIGOLD, H. No. 2. DROST, R. HELGOLAND.

ABHANDLUNGEN AUS DER NATURGESCHICHTE, PRAKTISCHEN ARZNEYKUNST . . . UND ANDERER HOLLÄNDISCHEN GESELLSCHAFTEN. 1775–6.
Leipzig.

ABHANDLUNGEN AUS DER NATURLEHRE, HAUSHALTUNGKUNST UND MECHANIK. (*K. Svenska veten, Stockholm.*)
Hamburg.
1739–79. Continued as Neue Abhandlungen . . . mechanik.

ABHANDLUNGEN DER BAMBERG. NATURFORSCH. GESELLSCHAFT.
1924–*date*.

ABHANDLUNGEN DER BREMEN. NATURWISSENSCHAFTL. VEREIN. *See* BREMEN.

ABHANDLUNGEN D. CHEMNITZ. NATURWISSENCHAFT. GESELLSCHAFT. *See* CHEMNITZ.

ABHANDLUNGEN D. KÜG. ZOOLOG. . . . MUSEUMS ZU DRESDEN. *See* DRESDEN.

ABHANDLUNGEN D. MUSEUM FÜR TIERKUNDE UND VÖLKERKUNDE ZU DRESDEN. *See* DRESDEN.

ABHANDLUNGEN D. NATURFORSCHENDE GESELLSCHAFT ZU GÖRLITZ. *See* GÖRLITZ.

ABHANDLUNGEN ZUR NATURGESCHICHTE, PHYSIK UND OEKONOMIE. 1779–80.
Leipzig.

ABHANDLUNGEN ZUR THEORETISCHEN BIOLOGIE. 1919–*date*.
Berlin.

ABHANDLUNGEN D. ZOOLOGISCH. GESELLSCHAFT. WIEN.
1901–25. (All pub.) Vols. 1–15, pt. 1.

ABHANDLUNGEN UND BERICHTE D. KGL. ZOOLOG. . . . MUSEUMS ZU DRESDEN. Hg. A. B. Meyer. *See also* DRESDEN.
1889–1903. Vols. 7–10.

ABHANDLUNGEN UND BERICHTE D. POMMERSCH. NATURFORSCH. GESELLSCHAFT. *See also* STETTIN.
1919–*date*. Parts 1–9, 1 and 2.

ABHANDLUNGEN UND VERSUCHE D. DANZIG. NATURFORSCH. GESELLSCHAFT. *See* DANZIG.

ABHANDLUNGEN UND VORTRÄGE AUS DEN GEBIETE DER MATHEMATIK, NATURWISSENSCHAFT UND TECHNIK.
1916–*date*. (Wanting.) *Leipzig.*

ABHANDLUNGEN UND VORTRÄGE AUS DEM GESAMMTGEBIETE DER NATURWISSENSCHAFTEN. 1887–1897? *Berlin.*

ABID B. HUSAYN ANSARI.
1870. On the lawfulness of the flesh of different animals for food. In Hindustani. *4to. pp. 16. lithograph.* *Lucknow.*

ABILDGAARD, P. C. *See* MÜLLER, O. F., 1788–1806.

ABSTRACT OF THE PROCEEDINGS OF THE DELAWARE VALLEY ORNITHOLOGICAL CLUB. 1890–1900. Continued as Cassinia. *Phila.*

ABŪ BAKR IBN AL-MUẒHIR. . . . AL JAMAL AL-YAZDI.
1493. Farah- (or Farrukh) nama-i-Jamali.

The reviewer of this title is the well-known authority on Persian MSS., Wladimir Ivanow, formerly attached to the Imperial Library in St. Petersburg, now an official of the Asiatic Society of Bengal at Calcutta. Until recently only one copy of this work was known. It is in the British Museum but is incomplete towards the end. C. Rieu, (*Catalogue of the B.M. Persian Manuscripts*) describes it in vol. II, pp. 465–6. A Vienna MS. (No. 1449 in Flügel's Catalogue) contains some extracts from the work.

'Dr. Casey Wood, of Stanford University, while in Kashmir, acquired another copy of this rare treatise bound in one volume with an early copy of the famous Nuzhat-nāma-i-'Ala'i and part of another work in the same style and on the same subject. Both this fragmentary monograph and the Farah-nāma were intended to supplement the earlier Nuzhat-nāma.'

'The transcript of the Farah-nāma contains not only the two last chapters, missing in the British Museum copy, but it furnishes interesting variants of the latter especially as to the date and place of composition. In catalogues both works are classed as encyclopedias of useful or natural history sciences, but they are something more and treat of many beliefs—especially superstitions—connected with both organic life and inorganic matter. It is particularly noticeable that the text of all the documents breathe a spirit free of all the bonds of Muhammadan orthodoxy. For example, the book gives detailed directions as to how the figures of planets and the deities they represent should be drawn—operations specifically forbidden by the Korān.'

The diction of the Farah-nāma is very simple and unpretentious and, of course, not quite so archaic as that of the 100-year older Nuzhat-nāma. For further information relating to the remarkable MS. see under *Nuzhat-nāma*.

The present copy gives the date of the original composition (written when the author was only 20 years old) as A.H. 597 or A.D. 1201, while Rieu quotes it as A.H. 587 or A.D. 1184. It was composed at the village of Mālih in the province of Iṣṭakhr.

ABU BAKR IBN BADR (14th cent.).
1852–60. Le Nâcérî. . . . Traité complet d'Hippologie . . . des Arabes. Traduit par M. Perron. *3 vols. 8vo. 2 pls. illusl.* *Paris.*

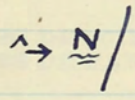
Written by a veterinary surgeon to Al-Nâcer, the most brilliant of the Arabian-Egyptian rulers (1294–1341). This book records the hippic science of the Arabs at its best period. [O.]

ACADEMIA CAESAREA LEOPOLDINO CAROLINA. . . . *See also* LEOPOLDINISCH, etc.
1871–1921.

ACADEMIA CAESAREA LEOPOLDINO-CAROLINA GERMANICA CURIOSORUM.

1652. Founded as Academia Naturae Curiosorum. (Akademie der Naturforscher.)
1687. Academia Imperialis Leopoldina Naturae Curiosorum. (Kaiserliche Leopoldinische Akademie der Naturforscher.)
1694? Academia Caesareo-Leopoldina Naturae Curiosorum.
1712. Academia Caesareo-Leopoldina Carolina Naturae Curiosorum.
1727. Academia Caesarea Leopoldino-Carolina Naturae Curiosorum. (Kaiserliche Leopoldinisch-Carolinische Akademie der Naturforscher.)
1748. Academia Caesarea Leopoldino-Franciscana Naturae Curiosorum.
1752. Reverted to title of 1727.
1859. Academia Caesarea Leopoldino-Carolina Germanica Naturae Curiosorum. (Kaiserliche Leopoldino-Carolinische Deutsche Akademie der Naturforscher.)
1670–7. Miscellanea curiosa medico-physica, etc. Ann. I–VII. *4to.* *Lipsiae*, etc.
1678–80. Miscellanea curiosa, sive Ephemeridum medico-physicarum, etc. Ann. VIII–X. *4to.* *Vratislaviae* and *Bregae.* Ann. I–X, forming 6 vols. bound in 4.
1683–92. —— Decuriae II, Ann. I–X. (In 5 vols.) *4to.* *Norimbergae.*
1695. —— Index generalis . . . Dec. I and II, etc. *4to.* *Norimbergae.*
1694–1706. —— Decuriae III, Ann. I–X. (7 vols. in 4.) *4to.* *Lipsiae* and *Francofurti*
1713. —— Index generalis . . . Decuriae tertiae, etc. *4to.* *Francofurti ad Moenum.*
1712–22. Academiae . . . Ephemerides, etc. Centuria I–X. (5 vols. in 3.) *4to.* *Francofurti* and *Lipsiae*, etc.
1739. —— Index . . . rerum . . . quae in Decuriis III ac Centuriis X. Ephemeridum Academiae . . . extant, adjuncta Sylloge alphabetica auctorum, etc. *4to.* *Norimbergae.*
1727–54. Acta physico-medica, etc. Vols. I–X (in 5).
1757– Nova Acta (Verhandlungen), etc. *4to.* *Norimbergae.*
1913. Acta Nova. Reportorium. 2 vols.

ACAD. CAESAR.-LEOPOLD NAT. CUR. *See* LEOPOLDINISCH-CAROLINISCHE DEUT. AKAD. D. NATURFORSCHER.



(R.) ACADEMIA DE CIENCIAS EXACTAS, FISICAS Y NATURALES DE MADRID.
1857–*date*. Anuario.
1850–1925. Memorias. Series 1.
1921–*date*. Memorias. ,, 2.
1847–63. Resumen de las actas.
1904–*date*. Revista.

ACADEMIA DE CIENCIAS EXACTAS, FISICO-QUIMICAS Y NATURALES DE ZARAGOZA.
1916–*date*. Revista.

ACADEMIA DE CIENCIAS MÉDICAS, FÍSICAS, Y NATURALES DE LA HABANA.
1869–*date*. Anales.

(R.) ACADEMIA DE CIENCIAS NATURALES Y ARTES DE BARCELONA.
1883–5. Actas.
1840–2. Boletín. 1 epoca.
1876–*date*. Memorias.

ACADEMIA MEXICANA DE CIENCIAS EXACTAS, FISICAS Y NATURALES.
1895–9. Anuario.
1903–*date*. Anales.
1876–1910. Memorias.

ACADEMIA NACIONAL DE CIENCIAS EXACTAS, CORDOBA, ARGENTINE REPUBLIC. *Buenos Ayres.*
1875–89. Actas. Vols. 1–6.
1921–*date*. Actas. Vols. 7– .
1874–*date*. Boletín.
1920–*date*. Miscelánea.

ACADEMIA DAS SCIENCIAS DE LISBÕA.
1899/1904–*date*. Actas.
1857–8. Annaes.
1854–*date*. Memorias.
1866–88. Jornal. Series 1.
1889–1910. Jornal. ,, 2.
1917–*date*. Jornal. ,, 3.

ACADÉMIE IMPÉRIALE DES SCIENCES DE ST. PETERSBURG. *See* AKADEMIIA NAUK, LENINGRAD.

ACADÉMIE DE METZ.
1819–52. Mémoires. Series 1. (Wanting.)
1852–71. Mémoires. Series 2.
1871–1914. Mémoires. Series 3.
1914–*date*. Mémoires. Series 4.

ACADÉMIE ROYALE DES SCIENCES, DES LETTRES ET DES BEAUX-ARTS DE BELGIQUE. *Brussels.*
1835–*date*. Annuaire.
1832–56. Bulletins. Series 1.
1857–80. Bulletins. ,, 2.
1881–98. Bulletins. ,, 3.
1899–*date*. Bulletins. (Suspended 1915–18.)
1840–1904. Mémoires couronnés.
1769–88. Mémoires. Series 1.
1820–1904. Mémoires. Series 2.
1904–*date*. Mémoires—classe des sciences.

ACADÉMIE DES SCIENCES, BELLES-LETTRES ET ARTS. *Lyons.*
1845–6. Mémoires. Series 1.
1851–92. Mémoires. Series 2.
1893–*date*. Mémoires. Series 3.

ACADÉMIE DES SCIENCES DE CRACOVIE. *See* AKADEMIJA UMIĘJETNOŠCI, KRAKOW.

ACADÉMIE DES SCIENCES. *Paris.*
See INSTITUT DE FRANCE, PARIS.

ACADÉMIE DES SCIENCES DE L'INSTITUT DE FRANCE.
1901–22. Mémoires. Series IV, vols. 7–12: Ser. V, vols. 1, 2, 3, pt. 1–9, and Jan. 1922. *Paris.*

ACADÉMIE DES SCIENCES, PARIS.
1924–5. Inventaire des périodiques scientifiques des bibliothèques de Paris. 4 pt. By A. Lacroix and others. *Paris.*
See also INSTITUT DE FRANCE.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.
1817–42. Journal. Series 1.
1847–1918. Journal. Series 2.
1841–*date*. Proceedings.
1824–8. Report of Transactions.
1921–3. Annual Report. Earlier reports in Proceedings.
1922–*date*. Special publications.
1923–*date*. Year-book.
Biological and microscopical section.
1922–*date*. Contributions.
1853. Catalogue of the öological collection.
See HEERMANN, A. L.

ACADEMY OF SCIENCES, PASADENA, CALIFORNIA.
1897–8. Publications I–III.

ACADEMY OF SCIENCE OF ST. LOUIS.
1856/60–*date*. Transactions (includes Proceedings).

ACCADEMIA DEGLI ASPIRANTI NATURALISTI, NAPLES.
1843–6. Annali. Series 1.
1847. Annali. Series 2.
1861–6. Annali. Series 3.
1867. Annali. Series 4.
1868–9. Annali. Second era.
1887–*date*. Annali. Third era.

(R.) ACCADEMIA DEI FISIOCRITICI. *Siena.*
1760–1841. Atti. Series 1.
1862–70. Atti. Series 2.
1873–85. Atti. ,, 3.
1889–1908. Atti. Series 4.
1909–*date*. Atti. Series 5.
1883–8. Bollettino.
1894–*date*. Processi Verbali delle Adunanze.
1877–81. Rapporti e Processi Verbali.
1869–72. Revista Scientifica.

(R.) ACCADEMIA DEI LINCEI, ROME.
1870–3. Atti. Series 1.
1873–6. Atti. ,, 2.
1876–84. Memorie. Series 3.
1884–90. Memorie. ,, 4.
1884–91. Rendiconti.
1892–1924. Rendiconti. Series 5.
1925–*date*. Rendiconti. ,, 6.
1876–84. Transunti.

ACCADEMIA SCIENTIFICA VENETO-TRENTINO-ISTRIANA, PADUA.
1872–*date*. Atti.

(R.) ACCADEMIA DELLE SCIENZE DELL'INSTITUTO DI BOLOGNA.
1850–1907. Memorie. Continued as Memor. delle Classe di Scienze fisiche, **1908–*date*.** *Index*, **1850–79.**

ACCADEMIA DELLE SCIENZE DI SIENA.
See also ATTI, etc.
1761–4. Vols. I–V.

(R.) ACCADEMIA DELLA SCIENZE DI TORINO.
1865–*date*. Atti.
1759–1838. Memorie. Series 1.
1839–*date*. Memorie. ,, 2. (Wanting.)

ACCLIMATISATION AND ORNITHOLOGICAL SOCIETY OF LONDON.
1860–8. Annual report. *Lond.*
1–5 (1860–4) title reads: Annual report of the Society for the Acclimatisation of Animals, Birds, Fishes, Insects, and Vegetables, within the United Kingdom.
In 1865 united with the Ornithological Society of London.

ACCLIMATISATION SOCIETY OF GREAT BRITAIN, IRELAND AND THE COLONIES. *See* ACCLIMATISATION AND ORNITHOLOGICAL SOCIETY OF LONDON.

ACKERMANN, KARL [1841–1913].
1898. Thierbastarde. Theile I und II. *8vo. Kassel.*
One of the few works on hybridization of animals.

ACLOGUE, ALEXANDRE [1871–].
1895–1900. Faune de France &c. *4 vols. 8vo. illust.* *Paris.*
A scientific treatise. All the indigenous vertebrates are systematically described in vol. I, pp. 7+548, text figures, and in vol. IV. Several of the above volumes have also been separately published.

1900. Faune de France, contenant la description des espèces indigènes. Vol. I. *12mo. illust. Paris.* CONTENTS, vol. 1. Mammifères, oiseaux, poissons, reptiles, batraciens, protochordes.

ACOSTA, JOSEPH DE [1539–1600].
1590. Historia natvral y moral de las Indias, en qve se tratan las cosas notables del cielo, y elementos, metales, plantas, y animales dellas: y los ritos, y ceremonias, leyes, y gouierno, y guerras de los Indios. *21 cm. pp. 535+(36).* Books 1–2 appeared originally in Latin under title 'De natura Novi orbis libri duo', 1588–9.
The library copies of this famous work on the natural history of the West and East Indies are in several languages—including English. It is one of the earliest and fundamental American treatises on natural history.

1598. Histoire Naturelle—traduite en François &c. *8vo.* (*Marc Orry pub.*) *Paris.*
A French translation.

1598. Historie Naturael ende Morael van de Westersche Indien. Black Letter Dutch.
A Dutch edition of this justly celebrated work.

1604. The Naturall and Morall Historie of the East and West Indies.
First English Edition.

1608. Historia Natural y moral de las indias &c. *4to.* *Madrid.*
A comparatively late Spanish edition.

ACTA NOVA D. ACADEMIA CAES. LEOPOLD-CAROL. GERMAN NATURAE CURIOS. *See* ACADEMIA CAES., etc.

ACTAS D. (R.) ACADEMIA DE CIENCIAS Y ARTES DE BARCELONA. *See* (R.) ACADEMIA DE CIENCIAS . . . BARCELONA.
1840–2. 1 epoca.

ACTA SOCIETATIS PRO FAUNA ET FLORA FENNICA. *See* HELSINGFORS. SOCIETAS PRO FAUNA ET FLORA.

ACTAS. CLASSE DE SCIENCIAS MATH., PHYSICAS E NATURAES. *See* ACADEMIA DAS SCIENCIAS DE LISBÕA.

ACTA UNIVERSITATIS LUNDENSIS.
1869–71. Section Mathem. and Nat. Sc.
1905–11. New Series. Vols. 1–7.

ACTA ZOOLOGICA FENNICA.
Vols. 1–3. *Helsingfors.*

ACTA ZOOLOGICA. INTERN. TIDSKRIFT ETC. STOCKHOLM.
1920–*date*. Vols. I– .

ACTES DE LA SOCIÉTÉ HELVÉTIQUE DES SCIENCES NATURELLES. *See* ALLGEMEINE SCHWEIZERISCHE GESELLSCHAFT FUER DIE GESAMMTEN NATURWISSENSCHAFTEN.

ACTES DE LA SOCIÉTÉ LINÉENNE DE BORDEAUX. *See* BORDEAUX.
This periodical is a type of the Transactions of numerous Linnean Societies published throughout France, Germany, Great Britain and America.

ADAM, VICTOR.
1844. Museo del caccialiatori o collezione di tutte le specie di selvaggina di pelo o di piuma che si cacciano coll'archibugio, etc. Prima traduzione Italiana. *4to. 72 pl. index.* *Venezia.*
This rare treatise on sport, in which game animals are described by an unknown 'cacciatore naturalista', is profusely but poorly illustrated. However, it gives a fairly good, semi-popular description of the animals hunted. Adam, the French illustrator, was really a fine artist. The present title is of the first Italian translation.

1852. *See* BUFFON, G. L. L. Histoire naturelle, &c. Illustré . . . de 150 dessins de Victor Adam.

Acta Societatis Scientiarum Naturalium Moraviae. 1925-27. v. 2-4.

Acworth, B. n.d. This bondage. A study of the migration of birds. 253p. London.

?date. Adams, H. G. Our Feathered Families. Birds of Song 1vol: Game & Water Birds 8vo. vol.

1876. Adams, H. G. Nests & Eggs of Familiar Birds. 8vo. 16 col. pls.

→ Adams, W. 1831. Osteological Symmetry of the camel. 4to. 60p.

ADAMS, ANDREW LEITH [1826–82].

1867. Wanderings of a naturalist in India, the western Himalayas, and Cashmere. *8vo. pp. xi+(1)+333. front. T. of c. index.* *Edinburgh.*

An interesting account of the author's seven years' sojourn in the East—with frequent change of place—he being a surgeon in the army. References to birds are very numerous and occur throughout the volume.

1870. Notes of a naturalist in the Nile Valley and Malta, a narrative of exploration and research in connection with the natural history, geology, and archaeology of the lower Nile and Maltese Islands. *8vo. pp. xvi+295. front. 10+(3) pl. map (col.) T. of c. Index.* *Edinburgh.*

1873. Field and forest rambles, with notes and observations on the natural history of eastern Canada. *8vo. pp. xvi+333. front. vignette. 25 figs. 4 maps (1 col. fold.). T. of c. append. index.* *London.*

Field studies made principally in New Brunswick during three years' sojourn 1866–8. References to birds are very numerous, pp. 117–98, 285–94, with a list of the birds of New Brunswick in the appendix, pp. 296–302.

ADAMS, ARTHUR [1820–78], *ed.*

1848–50. The zoology of the voyage of H.M.S. Samarang; under the command of Captain Sir Edward Belcher . . . during the years 1843–1846. Pub. under the authority of the lords commissioners of the Admiralty. *pp. xv+(250). 55 pl. (35 col.) 31½ cm.* *London.*

This famous Voyage added much to our knowledge of vertebrates (that were described by J. E. Gray), the fishes being reported upon by Sir J. Richardson.

See also SAMARANG.

1870. Travels of a naturalist in Japan and Manchuria. *8vo. pp. x+334. front. (ports.). 1 fig. T. of c.* *London.*

An interesting account of the author's visits to various places in Japan and Manchuria, whilst acting as staff-surgeon on board H.M.S. 'Actæon'. References to birds met with both on sea and land occur in almost all of the twenty-two chapters into which the book is divided.

ADAMS, CHARLES CHRISTOPHER [1873–].

1913. Guide to the study of animal ecology. *pp. 12+184. pl.* *New York.*

ADAMS, H. B. and **ADAMS,** H. G. *See* ADAMS, H. G.

1874. The smaller British birds, &c.

ADAMS, H. DAVENPORT. The Bird. *See* ADAMS, W. H. D.

ADAMS, HENRY GARDINER [1811–81].

1851. Favorite song birds; containing a popular description of the feathered songsters of Britain; with an account of their habits, haunts, and characteristic traits. Interspersed with choice passages from the poets and quotations from eminent naturalists. *12 col. ill. on stone, by Edward Gilks. 16mo. pp. xii+196. front. (col.). T. of c. index.* *London.*

An endeavor by the author to set before his readers a series of pictures of the most esteemed of the British Song Birds, with an account of their habits, and distinguishing traits, as he was able to gather from the best and most recent authorities on the subject.

1853. Cage and chamber-birds; . . . Tr. from the German of J. M. Bechstein. With considerable additions on structure, migration, and economy, comp. from various sources. Incorporating the whole of Sweet's British Warblers. *See* BECHSTEIN, J. M.

1854. Nests and eggs of familiar British birds, described and illustrated; with an account of the haunts and habits of the feathered architects, and their times and modes of building. With eight coloured plates of eggs, containing forty-eight different species. *8vo. pp. iv+78+(1). front. (col.). 7 pl. (col.). index.* *London.*

A little book intended for young readers, the title sufficiently explaining its scope.

[**1856.**] Humming birds, described and illustrated. *8vo. pp. (4)+144. front. (col.). 7 pl. (col.). 7 figs. Index.* *London.*

A general, popular account of the homes and haunts, habits, nests, voice, and scientific arrangement and names of the *Trochilidæ*. Following this is a more detailed account of the sixteen species figured in the colored illustrations.

[**1862**]. Our feathered families, the birds of prey; being an anecdotal and descriptive account of the rapacious birds of Britain. With a chapter on Ancient and Modern Hawking. With about fifty illustrations by F. W. Keyl, Harvey, and others. *12mo. pp. 320. front. 52 figs. T. of c. Index.* *London.*

This forms the second of three volumes of descriptive sketches of the Feathered Families of Britain. Volume I contained the Song Birds and their Congeners [1862], and vol. III, the Game and Water Birds [1863]. There was a new edition of the present volume in 1868, and a reissue of the three volumes in [1879]. Chapter XV, pp. 297–316, contains the account of ancient and modern hawking, whilst the frontispiece depicts a modern hawking party.

[**1862**]. The wild flowers, birds, and insects of the months, popularly and poetically described, with numerous anecdotes. *pp. vi+7–316. front. 2 pl. 47 figs. append. index.* *London.*

1871. Nests and eggs of familiar birds. Described and Illustrated. *London.*

1874. The smaller British birds. With descriptions of their nests, eggs, habits, &c. *8vo. pp. iv+252. front. (col.). 32 pl. (col.). T. of c.* *London.*

A popular account of the habits of the smaller British birds, written in collaboration with H. B. Adams. Another edition was issued in 1894.

1890. Nests and Eggs of Familiar Birds. *London.*

ADAMS, WILLIAM HENRY DAVENPORT [1828–91], and **GIACOMELLI,** H.

1878. The bird world described with pen and pencil. *xii+(13)–464 pp. T. of c. Numerous full-page plates.* *London.*

The text of this attractive volume is by Adams; the illustrations by Giacomelli. According to the author, the object of the chapters is to gossip pleasantly about birds distinguished by the possession of some special character—introducing, where appropriate, the descriptions of travellers, or the fancies of poets, or the association of history and romance. There are several editions of this well-known volume. *See also* MICHELET, JULES, 1869.

1885. The Bird World, &c. *8vo. ed. altera.* *London.*

ADAMSON, CHARLES MURRAY [ob. 1894].

1879. Sundry natural history scraps, more especially about birds. *2 vols. 8vo.* *Newcastle-upon-Tyne.*

Interesting excerpts from *The Field*, with fresh title-page and cover. The present copy is from the Mullens library.

[**ADAMSON,** C. M. (contd.)]

1880. Some more scraps about birds. *8vo. pp. 8+273. T. of c. pl. 43.* *Newcastle-upon-Tyne.*

Charming notes about various British birds, from personal observations. Rather a scarce book as only a limited edition was printed 'many of which have been promised to my friends'.

1881. Studies of birds. *obl. 8vo. pp. (4). front. (photo.). 40 pl. 1 fig. (vignette).* *Newcastle-upon-Tyne.*

Comprises the plates from the author's previous work, *Some More Scraps about Birds*, 1880–1, the legends being in pencil. This copy has the original covers, and is one of the artistic scrap-books of this author.

1882. Another book of scraps, principally relating to natural history, with thirty-six lithograph illus. from pen and ink sketches of wild birds. *8vo. pp. (4)+56+36.* *Newcastle-upon-Tyne.*

Another of this ornithologist's delightful, privately printed 'Scrap Books', illustrated by his own drawings.

1887. Some more Illustrations of wild birds, showing their Natural Habits. *oblong roy. 8vo. pp. 3+24. 24 col. pl. Only 200 copies printed. introd. and index.* *London.*

One of the several attractive 'Scrap-books' arranged by this well-known ornithologist.

ADANSON, MICHEL [1727–1806].

1757. Histoire Naturelle du Sénégal. Avec la relation abrégée d'un Voyage fait en ce pays, pendant . . . 1749–53. *4to. pp. (viii), 190; xcvi, 275. 19 pls. 1 map.* *Paris.*

AD-DAMIRI, ABUL-BAKA MUHAMMAD B. MUSA [born 1349 A.D.].

1906–8. Hayat al-Hayawan (A Zoological Lexicon). Translated from the Arabic by A. S. G. Jayakar. Vols. I and II, part 1 (all pub.). *pp. xxx+1–875 and 1–604. indexes to both vols.* *London and Bombay.*

The complete work in Arabic, of which this is an English translation of an important portion, constitutes one of several extensive encyclopedias of natural history originally written in one of the Islamic languages. Although much of the matter in this compendium —a large percentage about birds, with their Arabic names—is borrowed from others, not a little from Pliny and Aristotle, and much more drawn from the oriental imagination of the writer, yet, considering his medieval surroundings, the treatise is well worthy a place in the library of the advanced student of natural history. The McGill libraries have several MS. and printed variants of this well-known cyclopedia.

ADOLF FRIEDRICH GEORG, *Duke of* Mecklenburg [1882–].

1910–*date.* Wissenschaftliche Ergebnisse der Deutschen Zentral-Afrika-Expedition, 1907–8. *8vo.* 7 vols to 1914. (Wanting.) *Leipzig.*

Although important from other natural history viewpoints this voluminous report (so far as made) says very little about vertebrate zoology. Vol. IV (1912) gives a description by F. Nieden of the amphibia and R. Sternfeld of the reptiles.

ADOUIN, J. V. Description de l'Égypte. *See* SAVIGNY, MARIE JULES-CÉSAR LELORGNE DE.

**** and **GEOFFROY SAINT HILAIRE,** É.

1812. Description des Mammifères qui se trouvent en Égypte. *4to. editio princeps.* *Paris.*

Originally part (Tome II) of that famous *Description d'Égypte* ordered by Napoleon I. A second and inferior edition appeared in 1828.

ADVOCATE OF SCIENCE, AND ANNALS OF NATURAL HISTORY.

1834–5. (Wanting.)

AELIANUS, CLAUDIUS (fl. ca. 140 A.D.).

[1556.] Claudii Aeliani praenestini pontificis et . . . Opera quae extant omnia, graece latineque e regione edita, . . . partim multo quam antehac emendatiora in utraque lingua, cura et opera Conradi Gesneri, Tiguri, apud Gesneros fratres. [Printer's device; also the same on last page.] *folio. First line of title-page in Greek. n.d. pp. 24 ff.+658. T. of c. and index.*

A fine, bilingual and complete edition of the works of this writer. The first section, latinized as *De animalium natura libri XVII*, has been translated and annotated by the naturalists, Peter Gillius (Gallus) and Conrad Gesneri (Helvetius) from the best Greek codices. Charming initials, clear print, and the usual account of such birds as the swan, the goose, eagle, &c., not to mention much legendary avian life adopted from Aristotle and others. There are many marginal notes in both Greek and Latin by the hands of previous owners.

1562. Aeliani de historia animalium libri XVII. Quos ex integro ac veteri exemplari Graeco, Petrus Gillius vertit. Vna cum elephantorum descriptione. Item Demetrii de Cura accipitrum, et de Cura et medicina canum, eodem Petro Gillio interprete. *12mo. pp. 668+(index) 118.* *Lugduni.*

One of the numerous editions of Aelianus' book on Natural history (originally in Greek) that, translated into several languages and published separately, have been printed since the *editio princeps* appeared in the beginning of the sixteenth century. The present copy is largely devoted to birds. It is a rare item, not mentioned by Brunet. Three titles are added, one on the Elephant, one on Dogs, and the third on Falconry.

1565. De historia animalium libri XVII. *pp. 16+668+38.* 12mo. *Lugduni.*

The well-known treatise on animals by Aelianus translated by Petrus Gillius, to which is added a new description of certain elephants; also an essay on the care of hawks and dogs by Demetrius through the same translator.

1616. De Animal. natura. Lib. XVII. *Geneva.*

1744. Ἀιλιανου περι ζωων ἰδιοτητος βιβλια ΙΖ. Aeliani de Natura Animalium Libri XVII. Cum animadversionibus C. Gesneri et D. W. Trilleri: curante A. Gronovio, etc. *4to. 2 pt. pp. 14+27+1128+88. Greek and Latin.* *London.*

1772. Histoires diverses d'Élien, traduites du Grec, avec des remarques [by Bon. Joseph Dacier]. *sm. 8vo. pp. xii+520. preface, T. of c.*

In this French abbreviation of Aelianus, the author's natural history chapters are poorly represented, and the birds are almost neglected. There are several other editions of Aelianus in the library that furnish a complete account of the writer's zoology.

1784. Ἀιλιανου περι ζωων ἰδιοτητος βιβλια ΙΖ'. Aeliani de Natura Animalium Libri XVII . . . interpretum . . . J. G. Schneider. *2 vols. 8vo.* *Lipsiae.*

1832. Aeliani de Natura Animalium libri XVII. Volumen primum. Verba ad fidem librorum manuscriptorum constituit Fredericus Jacobs. Adjecti sunt indices rerum et interpretatio latina Gesneri à Gronovio emendata. *2 vols. small 8vo.* Vol. I, *pp. 465+254.* Vol. II, *pp. 700. indices.* *Jena.*

Vol. II. Volumen alterum. Annotationes scripsit Fridericus Jacobs. Adjecti sunt indices verborum cum addendis conjecturis ineditis Jo. Jac. Reiskii.

A useful edition of Aelianus' Animals, since it contains the original Greek text and the Latin translation by Gesner, as revised by Gronovius.

1858. French edition. *Paris.*

In library but for the moment inaccessible; this title is rare.

→ Aelianus, Claudius. 1611. De animalium natúra libri XVII.

← Adolph, Regulation of size. Springfield.

Agassiz, G. R. (ed.) 1913. Letters and Recollections of Alexander Agassiz-
pp. 454.

1864–6. German edition. *Leipzig.*

This rare copy is in the library but the full title is at the present time inaccessible.

AEMILIANUS, JOANNES.

1584. Naturalis de Ruminantibus historia Ioannis Aemyliani . . . vario doctrinae genere referta. *8vo. [20]+122 pp.* *Venetiis.*

In some respects an original, certainly a rare and quaint treatise on ruminants.

AFLALO, FREDERICK GEORGE [1870–1918].

1896. A sketch of the natural history of Australia with some notes on sport. (Macmillan's Colonial Library.) *8vo. pp. xxv+(3)+307. front. 30 figs. 1 map. T. of c. append. glossary. index.* *London.*

A sketch of the zoology of the Australian colonies, intended by the author as an introductory handbook. The birds are described on pp. 87–154, with 7 illustrations.

1898. A sketch of the natural history (vertebrates) of the British Islands; with a concise bibliography of popular works relating to the British fauna and a list of field clubs and natural history societies in the United Kingdom. *With illust. 8vo. pp. xiv+498. front. 3 pl. 70 figs. 1 map (fold). T. of c. appends. bibliogr. index.* *Edinburgh.*

In this volume some clue is given of the appearance and life-history of the 700 odd vertebrates, which either reside in, or visit the British Islands. The portion devoted to the birds will be found from pp. 97–296, with 36 illustrations, and a bibliography, pp. 449–57. A list of Natural History Societies and Field-Clubs is also given in Appendix II, pp. 460–7.

1904. British salt-water fishes; with a chapter on the artificial culture of sea fish by R. B. Marston. (Woburn library of natural history.) *4to. pp. 12+328.* *London.*

AFRICA ITALIANA (Soc. afric. d'Italia).

1882–*date.* Bollettino.

AGASSIZ, ALEXANDER EMMANUEL RUDOLPH [1835–1910].

1888. A contribution to American thalassography. Three cruises of the United States Coast and geodetic survey steamer 'Blake' in the Gulf of Mexico, in the Caribbean Sea, and along the Atlantic coast of the United States from 1877–1880. *2 vols. roy. 8vo.* Vol. I, *pp. xxii+314. front. 202 figs. (including maps). T. of c.* Vol. II, *pp. (4)+220. 383 figs. T. of c. index.* *London.*

In these two volumes references to birds are few and far between, the major portion of the work being devoted to a description of the various forms of life in the deep seas. In vol. I on pp. 114 and 120, however, we find references to the bird fauna of the West Indies, and to the effects of currents on the distribution of birds, and there are other short references to birds in the fauna of various places, such as the Tortugas Islands, etc. Text is identical with the Boston edition, also in the library.

AGASSIZ, ELIZABETH. *See* AGASSIZ, J. L. R. and AGASSIZ, ELIZABETH.

AGASSIZ, JEAN LOUIS RODOLPHE [1807–73].

1833–44. Recherches sur les poissons fossiles. *3 vols. and supplement.* *Neuchâtel.*

One of the earliest and most authoritative treatises, by this famous naturalist, especially valuable as a textbook on European fish fossils.

1839–42. Histoire naturelle des poissons d'eau douce de l'Europe centrale. *28 cm. pp. vi+326+[2]. 2 pl.* and *55 pl. (partly col.) in 3 portfolios. 32½×48½ cm.* *Neuchâtel.*

Plates of portfolios (except 'livr.' 2, pt. 2) interleaved with text in French, German, and English. The text, intended to form vol. 2, was issued in 1845 in vol. 3 of *Mémoires de la Société des sciences naturelles de Neuchâtel* under title: Anatomie des *Salmones,* par L. Agassiz & C. Vogt. It was accompanied by 18 plates, of which 14 are identical, except in size and quality of paper, with those of 'livr.' 2, pt. 2, of the present work.

CONTENTS.—t. 1. Embryologie des *Salmones* par C. Vogt. 1842.—Portfolios: [1.] livraison. Les espèces des genres *Salmo* et *Thymallus.* 1839. 2. livraison. [ptie. 1] L'embryologie des *Salmones.* 1842. 2. livraison [ptie. 2] L'anatomie des *Salmones.*

The first embryologist who studied development of fishes by artificial fertilization was Rusconi in 1836, although the method had been employed in industrial fishing in Germany at the end of the eighteenth century. Vogt was the second embryologist to employ the method of Rusconi. He lost thousands of eggs in his anxiety to protect them from the shock of the waves, until he found that they require to be kept in perpetual movement.

1842–6. Nomenclator zoologicus: continens nomina systematica generum animalium tam viventium quam fossilium, secundum ordinen alphabeticicum disposita, etc. *4to.* *Solodurni.*

This classic bibliography appeared in 26 fascicles constituting one volume, each part having a special title-page, pagination, and bibliography. It is a most valuable work of reference and forms a companion for the author's well-known *Nomenclatoris zoologici index universalis,* also published at Solothurn in 1846.

1846. Nomenclatoris zoologici index universalis. *pp. 8+393.* *Solodurni.*

A valuable contribution to the bibliography of zoology, companion of the author's *Nomenclator zoologicus* (q.v.). These well-known compilations have been reviewed by Prof. Asa Gray in the *American Journal of Science,* March 1847.

n.d. Nomina systematica generum avium tam viventium quam fossilium. (Nomenclator zoologicus, fasc. 2. Continens *Aves.*) *4to. pp. x+90.* [*Solodurni, Jent et Gassmann.*]

Lists the names, with bibliographical references, of all genera of birds to the year 1841.

1850. Lake Superior: its physical character, vegetation, and animals, compared with those of other and similar regions. With a narrative of the tour, by J. Elliot Cabot. And contributions by other scientific gentlemen. *illust. 8vo. pp. x+(2)+9–428. front. 16 pl. (1 map). T. of c.* *Boston.*

The main object of this excursion was a purely scientific one, viz. the study of the Natural History of the northern shore of Lake Superior. *Report* will be found in the second part of the volume, pp. 137–428, the *account* by J. E. Cabot of the birds collected and observed appearing on pp. 383–5, as well as other references in part 1, 'the Narrative', pp. 9–133.

1854. Sketch of the natural provinces of the animal world and their relation to the different types of man. *8vo. pp. 22. pl. map. illust.* *Philadelphia.*

Extracted fr. Nott and Gliddon's *Types of mankind.* Presentation copy to Prof. Eschricht from author, with autograph.

1857–77. Contributions to the Natural History of the United States of America. *5 vols. 4to.* *Boston.*

1857–62. Contributions to the natural history of the United States of America. By Louis Agassiz . . . Boston, Little, Brown and company; London. *4 vols. illust. 33 cm. 77 pl. (4 col., 2 fold.)*

The complete work was to include ten volumes, but only four were published. First monograph (vols. 1–2) in three parts; second monograph (vols. 3–4) in five parts.

[**AGASSIZ,** J. L. R. (contd.)]
CONTENTS.—vol. I. pt. I. Essay on classification. pt. II. North American *Testudinata*. 1857.—vol. II. pt. III Embryology of the turtle. 1857.—vol. III. pt. I. Acalephs in general. pt. II. *Ctenophoræ*. 1860.—vol. IV. pt. III. *Discophoræ*. pt. IV. *Hydroidæ*. pt. V. Homologies of the *Radiata*.

1859. An essay on classification. *8vo. pp. viii+381. index.* *London.*

The contents of this volume appeared for the first time as an introduction to a larger work now in course of publication, under the title of *Contributions to the Natural History of the United States.* The principal references to birds will be found under such headings as Birds, their standing, p. 40; their development, p. 125; Parasitic birds, p. 187; Birds as to their place and order in the principal systems of Zoology, pp. 285–370.

1866. The Structure of Animal Life. *8vo.* ~~(Wanting.)~~ *New York.*

**** and **STRICKLAND,** HUGH EDWIN.
1848–54. Bibliographia zoologiae et geologiae: a general catalogue of all books, tracts, and memoirs on zoology . . . corrected and enlarged, and edited by H. E. Strickland. Roy. Society. *4 vols.* *London.*

A classic, alphabetically arranged author catalogue which may be regarded as the forerunner of the *Catalogue of Scientific Papers* published by the Royal Society. It should find a place in every reference library on natural history.

**** and **GOULD,** AUGUSTUS A.
1848. Principles of zoölogy: touching the structure, development, distribution, and natural arrangement of the races of animals, living and extinct; with numerous illustrations. For the use of schools and colleges. Pt. I. Comparative physiology. *8vo. pp. (4)+xix+(1)+216. front. 1 map. 170 figs. T. of c. index.* *Boston.*

References to birds are general, and occur throughout the volume, under such headings as Special senses, sight, hearing, voice, &c.; Intelligence and Instinct; Motion (flying); Nutrition; Blood and Circulation; Embryology, &c., &c. Special references occur also to the extinct Dodo, nests of Baltimore Oriole and Tailor birds, and bird-tracks in red sandstone. Many of the illustrations also refer to the anatomy of birds.

1855. Principles of zoölogy. *pp. (2)+5–250. front. 1 map. 170 figs. T. of c. index.* *Boston.*

A revised and enlarged edition of the earlier issue of 1848. The illustrations are the same as in the previous edition, the revision and enlargement being in the main text only. Another issue appeared in 1856. The present copy contains the autograph of Sir J. W. Dawson.

1856. Principles of zoölogy. *pp. (2)+5–250. front. 1 map. 170 figs. T. of c. index.* *Boston.*

Apparently identical with the issue of 1855.

**** and **AGASSIZ,** ELIZABETH.
1886. A journey in Brazil. *8vo. pp. 20+540. Illust. pl. map.* *Boston.*

Valuable and interesting references to the flora and fauna of South America. The Library has also another edition, published in 1888.

1888. A Journey to Brazil. *Illust. Editio altera.* *Boston.*

**** and others.
1894. Naturgeschichte des Tierreichs. *Stuttgart.*

AGASSIZ, LOUIS. *See* BLANC, HENRI.

AGASSIZ ASSOCIATION. General Convention.
1890. Journal of Proceedings.

AGASSIZ BULLETIN.
1890–1. 7 nos. *Gilman, Ill.*

AGASSIZ COMPANION.
1886–8. 5 vols. (all pub.). *Wyandotte, Kas.*

AGASSIZ INSTITUTE. Proceedings.
1872–3. 2 vols. (all pub.). *Sacramento, Cal.*

AGASSIZ MUSEUM OF COMPARATIVE ZOOLOGY. *See* HARVARD UNIVERSITY: MUSEUM OF COMPARATIVE ZOOLOGY.

AGASSIZ RECORD.
1888. Nos. 1–6 (all pub.). *Oskaloosa, Iowa.*

AHLSTRÖM, A. M. *See* THUNBERG, C. P.

AIKEN, CHARLES E. H. and **WARREN,** E. R.
1914. The birds of El Paso County, Colorado. Pts. I–II in 1. *8vo.* Pt. I, *pp. 455–96. 8 pl. (15 figs.). 1 map. Bibliogr.* Pt. II, *pp. 497–603+(10). 16 pl. (30 figs.). Index.* *Colorado Springs.*

According to dated covers bound in at the end of this volume, part I was issued in May 1914 and part II in June–September 1914, being Colorado College Publication. General Series Nos. 74–6. Science Series, vol. xii, No. 13, I, pp. 455–96; II, pp. 497–603. No more published. The area covered by this list is the whole of El Paso County, while notes are given for points without the boundaries of the County, but adjacent thereto, especially that portion of the Pike's Peak Region in which are situated the Seven Lakes. Five life zones occur within the boundaries of El Paso County, Upper Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine, the bird life in consequence being of a varied character, the number of species represented in the annotated list amounting to 276 species. A bibliography is included in part I, pp. 470–5.

AIKIN, ARTHUR [1773–1854].
1798. The natural history of the year; being an enlargement of Dr. Aikin's Calendar of nature. *cap. 8vo. pp. vi+(2)+195+(1). 1 pl. (fold.).*

Numerous references to birds in each month of the year. A second edition, 16mo, was published in 1799, and a fourth in 1815.

AIKIN, JOHN [1747–1822].
1790. An Essay on India, its boundaries, climate, soil, and sea. (On the birds of Paradise and the Phoenix.) Trans. from the Latin of *J. R. Forster* (q.v.).

1795. A naturalist's calendar, &c. *See* WHITE, REV. GILBERT.

1798. The natural history of the year; being an enlargement of Dr. Aikin's Calendar of nature by A. Aikin. *See* AIKIN, A.

AIKMAN, JAMES.
1852. A Natural History of Beasts, Birds and Fishes, &c. *8vo.* (Wanting.) *London.*

AITCHISON, JAMES EDWARD TIERNEY [1836–98].
1887. Zoology of the Afghan Delimitation Commission.

AITINGER, J. C.
1653–4. Kurtzer und einfaltiger Bericht vom dem Vogelstellen, &c. 4to. Pp. 12+351+9. 52 pl. Engraved title and index. *Cassel.*

This is a very rare title, in the E. S. W. Library, not listed in the Cat. Br. Mus. (Nat. Hist).

AITKEN, E. H.
1883. The tribes on my frontier; an Indian naturalist's foreign policy, by Eha. With illustrations by F. C. Macrae. *cr. 8vo. pp. viii+216. front. 8 pl. 39 figs. T. of c.* *Calcutta.*

These papers were written during the Afghan war by E. H. Aitken, an officer in the Indian Government. They are irresistibly funny in

Put Agassiz titles

→ strict chronologic

order

1833-44
1839-42
1842-46
1846
1848
1848-54
1850
1854
1855
1855-6
1856-62
1857-77
1859
1866
1886
1888
1894
n.d.

(~~omit n.d. from text~~

→ (~~not as now in book~~)

AGASSIZ, J. L. R. (contd.)

CONTENTS.—vol. I. pt. I. Essay on classification. pt. II. North American *Testudinata*. 1857.—vol. II. pt. III. Embryology of the turtle. 1857.—vol. III. pt. I. Acalephs in general. pt. II. *Ctenophoræ*. 1860.—vol. IV. pt. III. *Discophoræ*. pt. IV. *Hydroidæ*. pt. V. Homologies of the *Radiata*.

1859. An essay on classification. *8vo. pp. viii+381. index.* *London.*

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1866. The Structure of Animal Life. *8vo.* *New York.*

****** and STRICKLAND**, Hugh Edwin.

1848–54. Bibliographia zoologiæ et geologiæ: a general catalogue of all books, tracts, and memoirs on zoology . . . corrected and enlarged, and edited by H. E. Strickland. Roy. Society. *London.*

3 vols.

A classic alphabetically arranged author catalogue which may be regarded as the forerunner of the *Catalogue of Scientific Papers* published by the Royal Society. It should find a place in every reference library on natural history.

****** and GOULD**, Augustus A.

1848. Principles of zoölogy: touching the structure, development, distribution, and natural arrangement of the races of animals, living and extinct; with numerous illustrations. For the use of schools and colleges. Comparative physiology. *8vo. pp. (4)+252+(1)+220. 1 map. 170 figs. T. of c. Index.* *Boston.*

References to birds are general, and occur throughout the volume under such headings as Special senses, sight, hearing, voice, &c. Intelligence and Instinct; Motion (flying); Nutrition; Blood and Circulation; Embryology, &c., &c. Special references occur also to the extinct Dodo, nests of Baltimore Oriole and Tailor birds, and bird-tracks in red sandstone. Many of the illustrations also refer to the anatomy of birds.

1855. Principles of zoology. *pp. (2)+5–330. front. 1 map. 170 figs. T. of c. Index pp.* *Boston.*

A revised and enlarged edition of the earlier issue of 1848. The illustrations are the same as in the previous edition, the revision and enlargement being in the main text only. Another issue appeared in 1856. The present copy contains the autograph of Sir J. W. Dawson.

1856. Principles of zoology. *pp. (2)+5–330. front. 1 map. 170 figs. T. of c. Index.* *Boston.*

Apparently identical with the issue of 1855.

****** and AGASSIZ**, Elizabeth.

1868. A journey in Brazil. *8vo. pp. 20+540. Illust. pl. maps.* *Boston.*

Valuable and interesting references to the flora and fauna of South America. The Library has also another edition, published in 1868.

1868. A Journey in Brazil. *Illust. Edilio altera.* *Boston.*

****** and others.**

1864. Naturgeschichte des Tierreichs. *Stuttgart.*

AGASSIZ, Louis. *See* BLANC, HENRI.

AGASSIZ ASSOCIATION. General Convention.

1890. Journal of Proceedings. *Ogdensburg, N.Y.*

AGASSIZ BULLETIN.

1890–1. 7 nos. *Gibson, Ky.*

AGASSIZ COMPANION.

1886–8. 5 vols. (all pub.). *Wyandotte, Mich.*

AGASSIZ INSTITUTE. Proceedings.

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AGASSIZ MUSEUM OF COMPARATIVE ZOOLOGY. *See* HARVARD UNIVERSITY: MUSEUM OF COMPARATIVE ZOOLOGY.

AGASSIZ RECORD.

1888. Nos. 1–6 (all pub.). *Oskaloosa, Iowa.*

AHLSTRÖM, A. M. *See* THUNBERG, C. P.

AIKEN, Charles E. H. and **WARREN**, E. R.

1914. The birds of El Paso County, Colorado. Pts. I–II in 1. *8vo. Pt. I, pp. 455–96. 8 pl. (15 figs.). 1 map. Bibliogr.* Pt. II, *pp. 497–603+(10). 16 pl. (30 figs.). Index.* *Colorado Springs.*

According to dated covers bound in at the end of this volume, part I was issued in May 1914 and part II in June–September 1914. Being Colorado College Publication, General Series Nos. 84–5, Science Series, vol. xii, No. 15, I, pp. 455–603, pl. 49–80. The most complete work published. The area covered by this list is the whole of El Paso County, with notes are given for points without the boundaries of the County, but adjacent thereto, especially that portion of the Pike's Peak Region in which are situated Cheyenne Cañon, Manitou, etc., within the boundaries of El Paso County. Upper Austral, Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine, the bird life in each zone is of a varied character, the number of species approaching in the aggregate the astounding total of 225 species. A bibliography is included in Part I, pp. 595–603.

AIKIN, Arthur [1773–1854].

1798. The natural history of the year; being an enlargement of Dr. Aikin's Calendar of nature. *See* AIKIN, A. [1773–1854].

AIKIN, Arthur [1797–1862].

1828. A geological sketch of the county of Cheshire, its boundaries, climate, [illegible]

1829. Birds of Paradise and the Paradise Eater, from the Latin of J. R. Forster. *See* FORSTER, J. R.

1838. A botanical excursion, &c. *See* [illegible]

1839. [illegible]

1843. The natural history of the year; being an enlargement of Dr. Aikin's Calendar of nature. *See* AIKIN, A.

AIKMAN, James.

1852. A Natural History of Beasts, Birds, Fishes, &c. *8vo.* (Wanting.) *London.*

AITCHISON, James Edward Thomas [1836–91].

1887. Zoology of the Afghan Delimitation Commission.

AITINGER, J. C.

1653–4. Kurtzer und einfältiger Bericht vom dem Vogelstellen, &c. *4to. Pp. 12+35+8+53 pl. Engraved title and index.* *Cassel.*

This is a very rare title, in the S. K. W. Library, not listed in the Cat. Brit. Mus. (Nat. Hist.).

AITKEN, E. H.

1883. The tribes on my frontier: an Indian naturalist's foreign policy, by Ehs. With illustrations by F. C. Macrae. *cr. 8vo. pp. viii+216. front. 8 pl. 39 figs. T. of c.* *Calcutta.*

These papers were written during the Afghan war by E. H. Aitken, an officer in the Indian Government. They are irresistibly funny in

←Ahlborn, Fr. 1896. Zur Mechanik d. Vogelfluges. 4to. figs.

1896-1902. Zusammenfassung: Unt. d. Mechanismus d. hydrodynam. Widerstandes. Schwebeflug u. Fallbewegung ebener Tafeln. – Stabilität d. Flugapparate. 4to. plts. + figs.

Agassiz.

←1874. Structure & animal life. 3rd ed. 8vo.

1865. Illustrated catalogue of North American Acalephae. 364 figs. Cambridge.

Agassiz & Whiteman. 1885-89. Development of osseous fishes. 31 pl. Cambridge.

description (of the various small animals and insects encountered by the author) and illustration, but full of genuine science too. There are several references to birds under the following headings, viz. the crows, p. 55; birds of the garden, pp. 135–46; birds at the mango top, pp. 147–57; birds at the tank, pp. 158–71; the poultry-yard, pp. 172–83. A sixth edition appeared in 1897 (q.v.), and a ninth in 1920 (q.v.). This writer adopted the pseudonym Eha or EHA.

1897. The tribes on my frontier. Illust. by F. C. Macrae. 6th ed. *cr. 8vo. pp. (6)+216. front. 7 pl. 57 figs. T. of c.* *London.*

The text of this edition is apparently the same as that of 1883. The illustrated title-page, however, does not appear, but a list of figures has been added, as well as seventeen extra illustrations.

1920. The tribes on my frontier; an Indian naturalist's foreign policy, by EHA. Illust. by F. C. Macrae. 9th ed. *cr. 8vo. pp. (6)+216. front. 7 pl. 57 figs. T. of c.* *London.*

The text and illustrations in this edition appear to be the same as that of 1897.

1923. A naturalist on the prowl or in the jungle, by Eha. Illust. by R. A. Sterndale. 5th ed. *12mo. pp. xii+257. front. 77 figs. T. of c.* *London.*

The author here deals in his amusing and interesting way with the animals, birds, and insects, &c., that are common to India, forming to some extent a sequel to his *The Tribes of My Frontier*. There are seventeen illustrations of birds with appropriate text. The first edition appeared in 1894.

n.d. The common birds of Bombay by E. H. A. Illust. 2nd ed. *8vo. pp. xiv+195. 32 figs. T. of c. 2 indexes.* *Bombay.*

This work consists of a number of popular articles which were first published in the *Times of India* on the common birds of Bombay, and are here republished with some additions.

AJA'IBA'L-MAKHLUQAT, by Zakariya Cazwini, XIIIc. Persian trans. Cosmography and natural science. *large 4to. lithograph. pp. 584. n.d.* *See also* CAZWINI and AL-QAZWINI. *Lucknow* (?).

(K.) AKADEMIE VAN WETENSCHAPPEN. *Amsterdam.*

1898–*date*. Proceedings. Afdeeling Natuurkunde.
1865–84. Processen-verbaal. Afdeeling Natuurkunde.
1854–92. Verhandelingen. Afdeeling Natuurkunde.
1892–*date*. Verhandelingen. First section (Natuur kunde, &c.).
1892–*date*. Verslagen van de gewone vergaderingen der wis- en natuurkundige afdeeling. (Wanting.)

AKADEMIE DER WISSENSCHAFTEN, PREUSS., BERLIN.

1926–7. Nomenclator animalium generum et subgenerum, hrsg. von. F. E. Schulze, W. Kükenthal; fortgesetzt von K. Heider. Schriftleiter: Th. Kuhlgatz, Berlin. Pts. 1–6.

(K.) AKADEMIE DER WISSENSCHAFTEN. *Vienna.*

1864–*date*. Anzeiger. Math.-Naturwiss-Klasse.
1850–*date*. Denkschriften. Math. - Naturwiss-Klasse.
1848–*date*. Sitzungsberichte. Math.-Naturwiss-Klasse. (Wanting.)

AKADEMIIA NAUK, LENINGRAD.

1777–82. Acta. (Wanting.)
1860–88. Bulletin. Series 3.
1890–4. Bulletin. ,, 4.
1894–1906. Bulletin. ,, 5.
1907–*date*. Bulletin. ,, 6.
1836–42. Bulletin scientifique. Series 1.
1843–59. Bulletin de la Classe Physico-Mathématique. Series 2.
1726–46. Commentarii. (Wanting.)
1828–57. Compte rendu.
1849–94. Mélanges biologique.
1831–59. Mémoires. Sciences . . . naturelles.
1859–97. Mémoires.
1829–35. Mémoires—supplement. Bulletin scientifique.
1783–1802. Nova Acta. (Wanting.)
1827–48. Recueil des Actes. (Wanting.)
1853–9. Recueil des mémoires.

AKADEMIJA UMIĘJETNOŠCI, KRAKOW.

1889–1900. Bulletin international. Comptes rendus des séances.
1901–*date*. Bulletin international. Classe des sciences . . . naturelle.

AKELEY, CARL E.

1929. In Brightest Africa.

The writer (whose early death is much to be deplored) approaches and deals with the fauna—especially the larger animal life—of Africa in a manner quite unlike the usual traveler and sportsman. Although essentially a collector of specimens for an American museum his activities (much aided by his clever wife) are invariably those of an educated naturalist eager to observe and record hitherto unobserved characters in the animals he meets.

AKSELL, P. M. *See* THUNBERG, C. P.

ALABAMA BIRD DAY BOOK.

1913–15. *3 vols. col. pl.* *Montgomery.*

ALABAMA MUSEUM OF NATURAL HISTORY. Museum Papers.

1910–*date*. (Geological Survey.) *Tuscaloosa, Ala.*

ALAUDA. Études et notes ornithologiques.

June, **1929–*date*.** No. 1. June; no. 2, July; no. 3, Aug. 1929. *Paris.*

This is a new and popular ornithological journal in which many French naturalists are interested and to which they contribute. Among them are J. Delamain, P. Paris, and H. Heim de Balsac. In number three is a paper on Ornithomelology, or an analysis of Bird-song.

ALBARDA, HERMAN [–1899].

1884. Naamlijst der de provincie Friesland in wilden staat waargenomen vogels met vermelding van al de soorten, die in Nederland voorkomen. *8vo. pp. 147. index.* *Leeuwarden.*

A privately published descriptive list of the birds of Friesland, second edition of an earlier (1866) catalogue. The treatise is in fact a brief study of Dutch avifauna.

1897. Aves Neerlandicae. Naamlijst van Nederlandsche Vogels. *8vo. index. pp. vi+151.* *Leeuwarden.*

Second edition of short descriptions, with synonymy, range, vulgar and scientific names, of Dutch birds.

ALBATROSS.

1912–19. Vols. I–VII (all pub.). *Cleveland, Ohio.*

A rare and rather important periodical.

ALBERT, FEDERICO.

1898. Contribuciones al Estudio de Aves Chilenas. (Wanting.)

ALBERT HONORÉ CHARLES, *Prince of* **Monaco.**

1889–*date*. Resultats des Campagnes scientifiques &c. Vols. 1–66 to 1922. *8vo.* *Monaco.*

These noted oceanographic reports made from material collected mostly during voyages by the Prince's yacht, the 'Hirondelle'.

ALBERTINUS, AEG.

1612. Der Welt-Tummel und Schaw-Platz. *München.*

A rare work mostly on natural history.

ALBERTIS, ENRICO ALBERTO D' [1847–].

1888. Crociera del Corsaro alle Azzorre. *8vo. pp. 269+3. illust. maps.* *Milano.*

ALBERTIS, LUIGI MARIA D' [1841–1901].

1881. New Guinea: what I did and what I saw. *2nd* ed. *2 vols. 8vo.* Vol. I, *pp. xii+424. front. (portr.). 20 pl. (4 col., birds). 59 figs. 1 map (col. fold.). T. of c.* Vol. II, *pp. xii+422. 17 pl. 23 figs. T. of c. index.* *London.*

A very interesting account of the author's various voyages and explorations during the years 1871–7. Both volumes abound with references to birds, in addition to which there are catalogues of birds collected in New Guinea (N.W.) in the year 1872—including many new species—also in New Guinea (S.E.) in the year 1875. Six of the thirty-eight plates represent birds, four of which are coloured.

ALBERTUS MAGNUS [1193–1280].

1479. De Animalibus. Hain-Cop. 546. *Folio.* Pub. by Paul of Butzbach. *Editio princeps.* For a complete review of this very rare title see Stadler (*Beitraege z. Gesch. d. Philos. d. Mittelalters*, Bd. 15–16, Münster, 1916–21). *Mantua.*

A full account of the author's ornithology is given by S. Killermann in *Die Vogelkunde des Albertus Magnus, Regensburg*, 1910.

1490. Summa naturalium (Philosophia naturalis). B. Farfengus. *sm. 4to* [O. 7406.] Hain-Cop. 504. *Brescia.*

(**1490**). Liber aggregationis seu secretorum; et de mirabilibus mundi. [O. 7407]. *sm. 4to.*

1508. Das Buch der Versamlung . . . vnd von etlichen Thieren. First German edition. Brunet. *Strassbourg.*

1545. Thierbuch &c. *8vo. ff. 172. 215 col. illust.* *Franckfort-am-Main.*

1596. De Falconibus, Asturibus, et Accipitribus. Appendix to Frederic II, Reliqua Librorum—De Arte Venandi cum Avibus. *sm. 8vo.* *See* FREDERICK II. *Augsberg.*

1778–89. Albertus Magnus Capit. de falconibus, asturibus, &c. Jo. G. Schneider. Bound with the 1596 ed.

1928. *See* BALSS, HEINRICH.

ALBIN, ELEAZAR [fl. 1713–59].

[1731–8.] A natural history of birds. Illustrated with . . . copper plates, curiously engraven from the life. And exactly colour'd by the author. To which are added, notes and observations by W. Derham. *3 vols.* $29\frac{1}{2} \times 24\frac{1}{2}$ *cm. 306 col. pl. index.* *London.*

The following is the collation of the library copy of this the first published series of colored plates of British birds, and about which there is considerable confusion as to the dates of publication:
Vol. I. 1738. pp. 7+96+4. 101 col. pl. Index; 'In two volumes, Vol. I.'
Vol. II. 1738. pp. 7+92. 101 col. pl. Index. 'In two volumes. Vol. II.'
Vol. III. 1738. pp. 7+95+1. 101 col. pl. Index.
The Library of Congress gives the dates of publication of their volumes 1–2 as 1831–4. Vol. III is sometimes treated as a supplement to vols. I and II; and it occasionally appears with the date 1840.
Mullens and Swann point out that the three-volume editions, as in the case of the copy in hand, were printed 'before 1738' and when the third volume was completed the three were issued together, with changed title, and all given the same date. The title of the third volume in the copy in hand is 'A natural history of Birds illustrated with a Hundred and one Copper Plates, engraved from the Life. Published by the Author Eleazer Albin, and carefully colour'd by his Daughter and Himself, from the Originals, drawn from the live Birds'.

1737. A natural history of English song-birds, and such of the foreign as are usually brought over and esteemed for their singing. *sm. 8vo. index. front. pp. [4]+98+[2]. 23 copper pl.* *London.*

The above is the first edition of a popular, indeed famous, little book of which there have been many editions.

1740. A Supplement to the Natural History of Birds. *London.*

1754. A natural history of singing birds; and particularly that species of them most commonly bred in Scotland; by a lover of birds [pseud.]. *12mo. pp. [16]+170. col. front. 30 col. pl. index.* *Edin.*

A pirated edition, with the plates colored, of Albin's *A Natural History of English Song-Birds*; first edition, 1737. In this state it is much the rarest of the half-dozen printings of this little treatise, which was quite popular in its day.

1779. A natural history of English song-birds, including such foreign birds as are usually brought over and esteemed for their singing: &c. New ed. *12mo. front. pp. 4+107. 92 col. figs. index. Lond.*

One of the half-dozen editions of this or similar titles. The popular book may be regarded as the *fourth edition*. There were also two pirated printings.

ALBUM DER NATUUR. HAARLEM.

1852–1909. 58 vols. Tables 1852–94. 61 vols. in all. Serial.

Contains much natural history, illustrations and text.

ALCOCK, ALFRED WILLIAM [1859–].

1899. A Descriptive Catalogue of the Deep Sea Fishes in the Indian Museum. 'Investigator' Marine Survey. *4to.* *Calcutta.*

1899. *See* CALCUTTA. INDIAN MUSEUM.

1902. A naturalist in Indian seas; or, Four years with the Royal Indian marine survey ship 'Investigator'. *8vo. pp. xxiv+328. front. 98 figs. map (fold.). T. of c. 2 appends. index.* *New York.*

References to birds: Behaviour of birds, pp. 123–6; Edible nests of swifts, p. 81; Breeding haunts of sea-birds, and destruction of young by crabs, pp. 181–3; Oceanic Teal and Snipe on Great Coco, and Andaman teal on Little Coco islands.

ALCOCK, THOS. *See* SCIENCE LECTURES, 1883–5.

ALDRIDGE, W.

1885. A gossip on the wild birds of Norwood and Crystal Palace district. *sm. 8vo. pp. xiii+109. front. 12 pl. T. of c.* *Upper Norwood, London.*

ALDROVANDUS, ULYSSES [1522–1605].

1599–1664. Opera omnia. *11 vols. folio.* A fine and complete set that includes the *De animalibus Insectis libri septem*; De Avibus; De Piscibus; De Quadrupedibus; De Serpentibus; De Draconibus; De Monstris, etc.

This celebrated naturalist was born at Bologna of a noble family and devoted his life to lecturing, collecting specimens, and in writing and illustrating numerous treatises on biological subjects. He became blind a few years before his death but died rich in honors, although for many years he spent most of his income in scientific pursuits. The *Bib. Osleriana* also has the complete zoological works of Aldrovandus in later (1602–45) editions.

1508 [Probably "wanting"]

Aiken, Henry. 1903. The National sports of Great Britain.
Reprint 1903.

Allen. W.C. 1932 Animal life and social growth.
This effective little book shows the unsuspected
relationships between man & insects birds & animals
with many surprising examples. 159p.

↑ 1930. The Book of Bird life. pp. 450.
↑ 1937. A.A. Allen. Am. Bird Biographies.

1603–81. Ornithologiæ, hoc est de Avibus Historiæ libri XII. Tomi 3. *folio.* *Bonon.*

These three volumes were issued at different dates and by different presses. [O.]

1610–35. Ornithologiæ hoc est, de avibus historiæ libri XII. *3 vols in 1. illust. Francofurti.*

Vols. 2–3 have title: *Ornithologiæ tomus alter-*[*tertius*] and contain libri XIII–XX.

1613. De Piscibus libri V, etc. 1st ed. *folio.* *Bononiæ.*

1638. De piscibus libri 5, et de cetis, lib. unus; J. C. Uterverius collegit. M. A. Bernia in lucem restituit. *folio. pp.* [6]+*732. illust. Bononiæ.*

A separately published volume from the author's collected works, edition of 1638.

1639. De quadrupedibus solidipedibus volumen integrum; J. C. Uterverius collegit et recensuit, M. A. Bernia in lucem restituit. *folio. pp.* [2]+*495. illust.* (in his [Collected works, 1638—vol. 3]). *Bononiæ.*

1640. Serpentvm, et draconvm historiæ libri dvo. Bartholomævs Ambrosinvs . . . opvs concinnauit . . . *4 p. l., pp.* [30]+*427, illust.* Engr. title. Colophon: Bononiæ M.DC.XXXIX. *folio. Bononiæ.*

1642. Quadrupedum omniū bisulcorū historia J. C. Uterverius colligere incoepit. Thomas Dempsterus perfecte absoluit, M. A. Bernia in lucem editit. *folio. pp.* [6]+*1040. illust. Bonon.*

1642–57. Monstrorum historia; cum Paralipomenis historiae omnium animalium. Bartholomaeus Ambrosinus volumen composuit, M. A. Bernia in lucem edidit. *2 pts. in 1 vol. folio. illust.* *Bononiæ.*

1645. De quadrupedib. digitatis viviparis libri tres, et de quadrupedib' digitatis oviparis libri duo; Bartholomaeus Ambrosinus collegit. *pp.* [2] +*718. illust. folio.* *Bonon.*

1645. Quadrupedum omnium bisulcorum Historia. *folio. illust.* [O.] *Bonon.*

1645–6. Ornithologiae hoc est de avibus historiae libri 12–[20]. *3 vols. folio. illust.* *Bonon.*

1766. De Piscibus libri V, etc. *folio. illust.* [O.] *Bonon.*

1908. Onoranze a Ulisse Aldrovandi nel terzo centenario, etc. *folio.* [O.] *Imola.*

'ALERT', H.M.S. *See* GUENTHER, A. C. L. G. 1881.

1884. Report on the Zoological Collections made in the Indo-Pacific Ocean . . . by H.M.S. 'Alert'. *8vo.* *London.*

The accounts of work done in Vertebrate Zoology during this celebrated Voyage will be found mostly under Guenther, A. C. L. G., 1881.

ALEXANDER, WILFRID BACKHOUSE [1885–].

1928. Birds of the ocean, a handbook for voyagers containing descriptions of all the sea-birds of the world, with notes on their habits and guides to their identification. *8vo. pp.xxiii*+(*1*)+*428. 140 illust. front. 87 pl. T. of c. append. index.* *New York.*

Probably the first comprehensive treatise of the birds of the ocean, the aim of the author having been to prepare a convenient pocket handbook for the identification of the various species of sea-birds likely to be met with on voyages in any part of the world. Excellent plates from photographs accompany the text.

ALEXANDRE, NICOLAS [1654–1726].

1777. Dictionnaire botanique, etc.—et des animaux d'usage.

ALFARO, ANASTASIO.

1897. Mamiferos de Costa Rica, etc. *8vo.* (Wanting.) *San José. Costa Rica.*

An important local faunistic treatise.

ALGEMEENE GENEES- NATUUR- EN HUISHOUDKUNDIGE JAARBOEKEN.

1785. *Dort.*

ALGERIA.

1844–67. Exploration scientifique de l'Algérie pendant les Années 1840, 1841, 1842, publiée par Ordre du Gouvernement et avec le Concours d'une Commission académique. Zoologie. *10 vols. folio.* Complete, with 299 coloured plates. *Paris.* Mollusques, par M. G. P. Deshayes; Animaux Articulés, par H. Lucas; Reptiles et des Poissons, par A. Guichenot; Oiseaux, par V. Loche; Mammifères, par V. Loche.

A very important and finely illustrated record. African vertebrate zoology is well represented by celebrated writers.

AL-GHĀFIKĪ [d. 1165].

(**A.H. 654.**) *Manuscript in Arabic,* by al-Ghāfikī, a Spanish physician, on *Simples,* arranged alphabetically. Vol. I (A–K) only. Illustrated with 367 col. drawings, among them 6 of animals. [O. 7508.]

ALGIERS.

1920–*date.* Travaux du Laboratoire de Zoologie générale.

1921–*date.* Travaux du Laboratoire de Zoologie appliquée.

ALIX, EDMOND.

1874. Essai sur l'appareil locomoteur des oiseaux. *8vo. T. of c. pp. ii*+*583. 3 pl.* *Paris.*

A comprehensive, scientific, and valuable contribution to a study of locomotion in birds and other animals. Autographed, presentation copy from the author.

AL-JĀHIZ [? 800–865]. In Arabic.

1899–1905. Book of Animals. *7 vols. 8vo. Cairo.*

The Compiler is indebted to Professor Ramsay Wright of Toronto for the following notes on this important, early Moslem work on zoology: 'The treatise is frequently mentioned in Bochart's *Hierozoicon* [two editions of which are in the McGill libraries] and by Qazwīnī (d. 1283) and Damiri (d. 1405) [titles also in McGill, q.v.], who borrow largely from Al-Jāhiz. Under the caption Al-Jāhiz or Djāhiz a reference to the present work will be found in the *Encyclopaedia of Islam,* vol. I.'

ALLEN, A. A. and **FUERTES,** L. A.; **PIRNIE,** M. D.

1927. General ornithology laboratory notebook for the recording of observations made in the field and studies made in the laboratory on the birds of Eastern North America. *4to. pp.* (*320*). *5 pl. 461 figs.* (*250 maps.*) *Ithaca.*

Issued by Cornell University. Included in this notebook are studies of the bird's skeleton, external parts, and feathers. Keys to the orders of N.A. birds; migration data for the birds of Central New York, a field roll book, key to the nests of birds of E.N. America, and 125 identification and life-history sheets for intensive studies of the birds of E.N. America. These sheets are supplied with outline maps for charting distribution and with outline figures of the birds for coloring.

ALLEN BIRD CLUB. *See* ANNUAL REPORT OF THE ALLEN BIRD CLUB.

ALLEN, E. J. **1928.** *See* CHALLENGER SOCIETY.

ALLEN, FRANCIS H.

1925. Thoreau's Bird-Lore, etc. *12mo. Boston.*

ALLEN, GLOVER MORRILL [1879–].

**** and **HOWE,** R. H. *jr.*

1901. The birds of Massachusetts. *See* HOWE, R. H.

1903. A list of the birds of New Hampshire. *Manchester N.H.*

1904. Fauna of New England. II. *Aves.* Boston Soc. of Natural History.

1909. Occasional papers of the Boston Society of Natural History. VII. Fauna of New England. II. *List of the aves. 8vo. pp. 4+10+230.*

An annotated list of all the birds known to have occurred in New England within historic times. The nomenclature is that adopted by the American Ornithologists' Union Check-list, July 1908. The birds listed number 402; irrespective of introduced, escaped, or hypothetical species which are given in a separate list.

1909. *See* GRENFELL, W. T.

1924. An introduction to the study of birds. Being ten lectures delivered under the auspices of the New England bird banding association. Unpaged. *2 pp. l., 118 pp. 23½ cm.* Lectures 3–10 have each a separate t.-p.

This may be regarded as a prefatory volume to the author's *Birds and their Attributes.*

1925. Birds and their attributes. *pp. xiii+338. col. front., illus., plates, port. 21½ cm. Index.*

Originally prepared as a series of lectures under the auspices of the New England (now Northeastern) bird banding association. An admirable account of the human and many other relations of birds.

ALLEN, GRANT [1848–99].

1881. Vignettes from nature. *8vo. pp. viii+229. T. of c.* *London.*

Only one of the above vignettes is devoted to birds, and that to the Heron. This admirable brochure was also published as No. 33, vol. 2, of the Humboldt library.

1898. Flashlights on nature. *8vo. pp. viii+312. 144 pl. T. of c.* *New York.*

One of the above interesting life-histories is devoted to birds, seven plates depicting phases in their life-history.

1905. Flashlights on nature; a popular account of the life histories of some familiar insects, birds, plants, etc. *8vo. pp. viii+312. new ed. front. 144 pl. T. of c.* *New York.*

The first edition of this charming work was issued in 1898.

1908. The natural history of Selborne. *See* WHITE, REV. GILBERT.

ALLEN, HARRISON [1841–97].

1864. Monograph of the bats of North America. *8vo. pp. 22+[2]+85. illust.* (Smithsonian miscellaneous collections, no. 165.) *Wash.*

Author's separate of an important tract.

ALLEN, JOEL ASAPH [1838–1921].

1868. Birds Observed in Western Ohio, Northern Ill. and Richmond, Ind. *4to.* *Boston.*

One of the first brochures of a famous American naturalist, many of whose contributions to vertebrate zoology were made to periodical and government publications.

1869. Catalogue of the Mammals of Massachusetts, etc. *8vo. pp. 65.* *Washington.*

An excerpt of considerable value to the systematist.

1872. Bulletin of the Museum of Comparative Zoology, at Harvard College, Cambridge, Mass., Vol. III, No. 6. Notes of an ornithological reconnaissance of portions of Kansas, Colorado, Wyoming, and Utah. *8vo. pp. 113–83.* *Cambridge.*

In this author's reprint are indicated some of the results of field work on the Plains and in the central portions of the Rocky Mountains; these results include more or less complete annotated lists of the birds of nine quite widely separated localities, with a general summary of the whole.

1873–90. *See* UNITED STATES. SURVEY OF TERRITORIES.

1874. Notes on the Natural History of Montana and Dakota. Author's separate. *Boston.*

1876. The American bisons, living and extinct. *4to. pp. 10+246+12 pl. map.* (Harvard Coll. Museum of comparative zoology. Memoirs, vol. 6, no. 10.)

1876. Progress of ornithology in the United States during the last century. *8vo. pp. 16.* Author's separate.

This paper reviews the early articles, general works, as well as works and papers of a special or local character on American birds, concluding with a summary of the progress of Ornithology in the United States during the last century. [From the *American Naturalist,* vol. X, pp. 536–50, September 1876.]

1880. History of North American pinnipeds; a monograph of the walruses, sea-lions, sea-bears and seals of North America. *8vo. pp. 16+785. 66 figs.* (U.S. Geological and geographical survey of the territories. Miscellaneous publications, no. 12.) Author's separate.

1884–7. *See* UNITED STATES. BUREAU OF FISHERIES.

1886. Revised List of the Birds of Massachusetts.

1889. On Cyclorhis viridis (Viell.) and its near allies, with remarks on other species of the genus Cyclorhis. *8vo. pp. 123–35. 7 figs.* (Extracted from *Bull. Am. Mus. Nat. Hist.,* Vol. II, No. 3.) Author's edition issued June 17, 1889. *New York.*

Three times within the space of five years had this genus been monographed; by Hans Gadow in 1885, by Dr. Sclater in 1887, and Count von Berlepsch in 1888, but in each case with only partially satisfactory results, owing in large part to lack of a sufficient number of specimens to show what limit of variation in any one form should be allowed for individual variation. Luckily this deficiency, in the case of one species at least (C. viridis) was supplied by material which came into Mr. Allen's hands while the subject was fresh, thus enabling him to supplement the efforts of his predecessors by a much more elaborate paper. The article contains the author's present impressions of the status, relationships, and distribution of the various forms of Cyclorhis, concluding with an excellent Key to the species.

1892. The North American species of the genus Colaptes, considered with special reference to the relationships of C. auratus and C. cafer. Author's edition, extracted from *Bulletin of the American Museum of Natural History,* vol. IV, no. 1, article II, pp. 21–44. *8vo. pp. [24]. 1 map (fold).* *New York.*

In arriving at a solution of this problem 785 specimens of the genus *Colaptes* were examined, representing all of the North American and West Indian forms of the genus in the leading public and private museums of the country.

1892. Description of a new Gallinule, from Gough Island. *8vo. pp. 57–8.* Author's edition, extracted from *Bulletin of the American Museum*

1881. Evolutionist at large.

←1896. Woodland idylls. 256 p. c. 8 vo.

→Allen, L. F. 1872. History of the Short-Horn Cattle, origin, progress and present condition.
pp. 266, 10 plo. Buffalo, N.Y.

of Natural History, Vol. IV, No. 1, Article VI, pp. 57–8. New York, May 9, 1892. *New York.*

Gough Island is situated about 200 miles south-west of the Cape of Good Hope, and about the same distance east of Tristan d'Acunha. It is a mere volcanic islet about 7 miles long by 3–4 wide and rises to 4,380 feet, very little apparently being known of its natural history. The species here described is based on three skins collected by Mr. Geo. Comer, after whom the species is named *Porphyriornis comeri, gen. et. sp. nov.*

1896. Alleged changes of color in the feathers of birds without molting. *8vo. pp. 13–44.* Author's edition, extracted from *Bulletin of the American Museum of Natural History*, Vol. VIII, Art. III, pp. 13–44. N.Y. Mch. 18, 1896. *New York.*

A summary and criticism of the work of some of the more important writers upon the subject of color changes in feathers without molt, and it deals unsparingly with those who have asserted as possible the complete rejuvenation of an abraded feather. These observers appear to have had too little material on which to build and so have had recourse to fanciful theories which the present author has done his best to explode.

1900. List of birds collected in the district of Santa Marta, Colombia, by Mr. Herbert H. Smith. Author's edition, extracted from *Bulletin of the American Museum of Natural History*, vol. XIII, article XIV, pp. 117–83. *8vo.* *New York.*

The basis of this list representing 388 species is a collection of 2,834 birds collected by Mr. Smith in the neighborhood of Santa Marta, Columbia, between sea-level and an altitude of about 8,000 feet, from May 4, 1898, to September 7, 1899.

1905. Mammalia of Southern Patagonia. Princeton Univ. Expedition. Vol. III, Pt. 1.

1905. Report on the birds collected in Northeastern Siberia by the Jesup North Pacific Expedition, with field notes by the collectors. *8vo. pp. 219–57.* *New York.*

Author's edition, extracted from *Bulletin of the Am. Mus. Nat. Hist.*, vol. XXI, art. XIII, pp. 219–57. N.Y., July 24, 1905. The second of a series of papers on the Zoological results of the Siberian Division of the Jesup North Pacific Expedition, the first relating to the Mammals. The collection of birds, like the collection of mammals, was made chiefly by Mr. Buxton whose itinerary and general description of the country appears in the previous paper, pp. 104–19. The collection contains 800 skins, of which 580 were Mr. Buxton's, the remainder being presented by Mr. Sokolnikoff, an officer in the Russian army and Governor of the Anadyr District, with head-quarters at Marcova. The number of species represented in the collection and here included in the annotated list is 127, of which two—an Alauda and an Anthus—appear to be not heretofore described.

1907. The Boeolophus bicolor-atricristatus group. *8vo. pp. 467–81.* *New York.*

1907. The types of the North American genera of birds. *8vo. pp. 106.* *New York.*

An author's edition, extracted from the *Bulletin of the American Museum of Natural History*, vol. XXIII, article XVI, pp. 279–384, New York, Apl. 15, 1907. In its pages the genera and subgenera of the present (second) edition of the A.O.U. *Check-List of North American Birds* and its several supplements are taken up in the systematic sequence of the Check-List, for the purpose of showing how the types, as now currently accepted, came to be so recognized, and in cases where the type was determined by elimination, an attempt is made to show each step of the process.

1908. A list of the genera and subgenera of North American birds, with their types, according to article 30 of the International code of zoological nomenclature. *8vo. pp. 50.* *New York.*

Author's edition, extracted from *Bulletin of the American Museum of Natural History*, vol. XXIV, article I, pp. 1–50. New York, December 26, 1907. In a previous volume of this *Bulletin* (vol. XXIII, pp. 279–384, Apl. 15, 1907) the author published a paper entitled *The Types of the Genera of North American Birds*, as determined in accordance with the rule of priority, or the so-called method of elimination. The present investigation was undertaken for the purpose of determining the truth or fallacy of certain allegations regarding the results of type-determination by the above method of elimination.

1910. Collation of Brisson's genera of birds with those of Linnaeus. *4to. pp. [21].* *T. of c.* (Am. *Mus. Nat. Hist. Bulletin*, vol. 28, art. 27, pp. 317–335.)

Author's edition which is for that reason, although a separate, annotated here; also because it is a valuable contribution to the early history of ornithology.

1919. Synonymy and Nomenclature of the Smaller Spotted Cats of Tropical America. *8vo. pp. 79. 31 illust.* *N.Y.*

A valuable work of reference.

1925. Primates collected by the American Museum Congo Expedition. *89 plates.* *New York.*

****** and others.**

1886. The code of nomenclature and check-list of North American birds adopted by the American ornithologists' Union. Being the report of the committee of the Union, . . . [J. A. Allen and others]. *See* AMERICAN ORNITHOLOGISTS' UNION.

1895. Second edition.

1908. Revised edition.

1910. Revised edition.

ALLEN'S NATURALIST'S LIBRARY.

1894–7. Edited by R. B. Sharpe. The components of this semi-popular series are nearly all—including the vertebrate zoological titles—annotated in the accompanying Catalogue. The faunal subjects of especial interest are: Primates, by H. O. Forbes, 2 vols., 1894; Carnivora, R. Lydekker (1895); Marsupialia and Monotremata, R. Lydekker (1894); British Mammalia, R. Lydekker, 1895; Game Birds, W. R. Ogilvie-Grant, 1895 et seq.; Birds of Great Britain, 4 vols., R. B. Sharpe.

ALLÉON, LE COMTE.

1898. Nouv. procédés de taxidermie, accomp. de qq. impressions ornithol., de photogr. des princ. types de la Coll. de l'auteur à Makri-Keui, près Constantinople, et de physionomies de rapaces sur nature. *4to, 132 figs.*

A rare item, not listed in the *Br. M. Cat.* (*Nat. Hist.*), but in the *Cat. of the Lib. Zool. Soc.*

ALLÉON-DULAC, J. L.

1763–5. Mélanges d'histoire naturelle. *6 vols. illust. with pl.* *Lyon.*

Contains notes on the whole range of natural history.

ALLGEMEINE BIBLIOGRAPHIE. 1856–1914. *Leipzig.*

ALLGEMEINE DEUTSCHE NATURHISTORISCHE ZEITUNG ISIS.

1846–7. Vols. 1–2. *Dresden.*

1855–7. New series. Vols. 1–3.

ALLGEMEINE FISCHEREI-ZEITUNG.

1876–*date.* *Munich.*

ALLGEMEINE GEFLUEGEL-ZEITUNG.

1883–4. Vols. 1–2 (all pub.). *Wien.*

ALLGEMEINE SCHWEIZERISCHE GESELLSCHAFT FUER DIE GESAMMTEN NATURWISSENSCHAFTEN.

1825–1920. Actes de la Société Helvétiques des Sciences Naturelles. Sessions 11–98. *88 vols. 8vo. Solothurn.*

Each year's proceedings are, as a rule, printed and published in the town where the meeting is held; the title was formerly in the prevailing language of the place—German, French, Italian, and in one instance (1863) Romanish; but since that date two title-pages (German and French) have been issued.
This edition, issued by the *Archives des Sciences de Genève*, really includes all the headings of the French-German Society—Actes, Comptes Rendus, Verhandlungen, etc.

See also SCHWEIZERISCHE NATURFORSCHENDE GESELLSCHAFT.

ALLGEMEINES MAGAZIN DER NATUR, KUNST U. WISSENSCHAFT.

1753–67. Vols. 1–12. Index. (all pub.). *Leipzig.*

ALLUAUD, CHARLES A. (1861–) and **JEANNEL,** R.

1912–*date*. Voyage . . . en Afrique Orientale, 1911–12. Resultats Scientifiques. *8vo.* (Wanting.) *Paris.*

Although this report of the fauna of East Africa is valuable so far as it goes there is little of vertebrate zoology furnished. Alluaud, however, gives an interesting account of the fishes in Lake Victoria Nyanza.

AL-MUSTAUFI AL-QAZWĪNĪ, HAMDULLAH.

1928. The Zoological Section of the Nuzhatu-l-Qulub. Edited, translated and annotated by Lieut.-Colonel J. Stephenson. Pub. by the Royal Asiatic Society. Oriental Translation Fund, New Series, vol. XXX. *8vo. pp. xix+100+128. index.* *London.*

The original treatise, with the flowery title of *Heart's Delight*, is a scientific encyclopedia giving the Persian views of the natural world as held in the fourteenth century. The portion devoted to zoology is the third *martaba* (chapter) of the first *maqala* (section), and Stephenson has fully translated it with valuable notes. A reproduction of the Persian manuscript (written A.H. 740) occupies the second half of the book.

ALPHÉRAKY, SERGIUS [1850–].

1900. Útki Rosíi. *2 pts.* *St. Petersburg.*

1905. The geese of Europe and Asia; being the description of most of the old world species; [illust.] by F. W. Frohawk and P. P. Sushkin. *folio. index. pp. 8+[2]+198. 24 col. pl. London.*

English translation of the Author's Russian work (*Gusi Rosii*) on the geese of the palearctic region published in 1904. There is an Appendix I, by G. F. Göbel, on the Eggs of Russian Geese; as well as Appendix II by Buturlin on a visit to Kolguev in 1902. The colored plates are well printed.

ALPINA.

1806–1827. First Series, *4 vols. 8 vo.*, 1806–09, ed. by C. V. von Salis and J. R. Steinmüller. *Neue Alpina* (J. R. Steinmüller) *2 vols. 8 vo.* 1821–27. *Winterthur.* Both series record new species. (Wanting.)

ALPINUS, PROSPER [1553–1617].

1735. Historiae Aegypti naturalis; opus postumum. *2 vols. 8vo. pl.* *Lugduni Batavorum.*
CONTENTS. Vol. 1. Rerum Egyptiarum libri quatuor. 2. Plautis Egypti.

AL-QAZWINI, ZAKARIYA B. MUHAMMAD.

Ca. **1675.** Ajaibul-makhluqat. Wonders of creation. Persian MS. *4to. Ff. 401. Numerous col. illust.*

This famous author's name is also transliterated Cazwini and Al-Cazwini.

This is a fairly good copy of the famous work on zoology originally written in Arabic about A.D. 1250. It has often been reproduced in MS. and by lithography and translated into Persian, Hindi, and other tongues. The Blacker library has several other copies—some of them variants of the original. The paintings in the present copy are quite artistic; and the calligraphy is good.

ALSTON, EDWARD RICHARD [1845–81].

1876. *See* BRIT. ASSOCN. AD. SC.

1879–1915. *See* GODMAN AND SALVIN, BIOLOGIA CENTRALI-AMERICANA.

ALTENBURGISCHE NATURFORSCHENDE GESELLSCHAFT. *See* OSTERLÄNDISCHE BLÄTTER . . . GEWERBEKUNDE.

ALTON, JOHANN SAMUEL EDUARD D' [1803–54].

(1824.) Zur vergleichenden Osteologie von Goethe, etc. *4to. illust.* [O. 2768.] *Bonn.*

ALTON, J. W. E. D' [1772–1840]. *See* PANDER AND ALTON, 1821–38.

ALTUM, BERNARD [1824–1900].

1868. Der Vogel u. sein Leben. *8vo. pp. 16+256.* *Münster.*

The third German edition of this widely read and popular book.

1875. Der vogel und sein leben. *8vo. Index. pp. xv+295. Fifth edition.* *Münster.*

This popular work furnishes an interesting account of the feather formation, plumage coloration, song, nidification, family life, etc., of birds.

1876–80. Forstzoologie. 2te verbesserte und vermehrte Aufl. *8vo. 2 vols. illust. pl.* *Berlin.*
CONTENTS. Vol. 1. Säugethiere. 2. Vögel.

1878. Lehrb. d. Zoologie. *8vo. pp. 424. 226 figs.* *Freiburg in Breisgau.*

This is the fourth edition of a well-known college text and reference work on general zoology.

******** and **LANDOIS,** H.

1883. De vogel en zijn leven, met bijzondere toelating des schrijvers vertaald door Frans de Poorter. *8vo. pp. 359.* *Lokeren.*

Dutch edition of a popular work on bird life.

ALVERDES, FRIEDRICH [1889–].

1923. Neue Bahnen in der Lehre vom Verhalten der niederen Organismen. *8vo. illust. pp. 64+4.* Bibliography, pp. 60–2. *Berlin.*

AMATEUR NATURALIST. *Ashland, Me.*

1904–9. Merged into Guide to Nature.

AMEGHINO, FLORENTINO.

1894. Sur les Oiseaux Fossiles de Patagonie. *8vo.* *Buenos Aires.*

AMERICAN ACADEMY OF ARTS AND SCIENCES.

1780–1821. Memoirs. *Boston.*

1846–*date*. Proceedings.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. *Salem.*

1875. Memoirs.

1848–*date*. Proceedings.
See also SCIENCE. *Camb., Mass.*

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Alpina. 1806-1809. First series 4 vols. all pubd. bot. from Jullien, Geneva + in library

American Game. Official Magazine of the American Game Association.

1909. Fifty years of Darwinism, modern aspects of evolution; centennial addresses in honor of Charles Darwin, January 1, 1909. *8vo. 3+[3]+ 274 pp.* *N.Y.*

AMERICAN ASSOCIATION OF GEOLOGISTS AND NATURALISTS.
1840–2. Transactions. *Boston.*

AMERICANA COLLECTOR, THE.
June, 1926. *Metuchen, N.J.*

AMERICAN BIRD HOUSE JOURNAL.
Edited by J. W. Jacobs. *4to. 19+illust.* Vol. 4, no. 1, is January 1919; vol. 5, no. 1, is January 1921. Colored wrapper. *Waynesburg, Pa.*

This is a trade circular published under the guise of a periodical and in the interest of a commercial firm, but it advertises, nevertheless, a most useful adjunct to bird protection and bird culture. It may be described as an irregular annual.

AMERICAN EXCHANGE AND MART.
1884–7. Vols. I–III. *Boston.*

The compiler has seen only Vol. III, No. 4, Feb. 1887.

AMERICAN FIELD.
1874–5. Published as Field and Stream.

1875–6. Published as Field.

1878–81. Published as Chicago Field.

1882–*date*. Published as American Field. *Chicago.*

The American sportsman's journal—containing many articles on natural history.

AMERICAN FISHERIES SOCIETY.
1870–*date*. Transactions.

AMERICAN JOURNAL OF SCIENCE.
1818–96. 1820–79 known as American Journal of Science and Arts, also as Silliman's Journal of Science. Conducted by Benjamin Silliman, James D. Dana, etc.
First Series. 100 nos. forming 49 vols. General Index, 1 vol. In all 50 vols. 1818–45.
Second Series. 150 nos. forming 50 vols. 1846–70.
Third Series. 300 nos. forming 50 vols. 1871–95.
Fourth Series. Vol. 1, No. 1. 1896. *New Haven.*

AMERICAN JOURNAL OF SCIENCE AND ARTS. *See* AMERICAN JOURNAL OF SCIENCE.

AMERICAN KENNEL GAZETTE. **1888–*date*.** *New York.*

AMERICAN MAGAZINE OF NATURAL SCIENCE. *Sac City* and *Des Moines, Iowa.*
1892–4. (All pub.)

AMERICAN MIDLAND NATURALIST. *Notre Dame, Ind.*
1909–*date*. Vols. 1–13. *See also* MIDLAND NATURALIST.

AMERICAN MUSEUM OF NATURAL HISTORY. *New York.*
1921–*date*. American Museum Novitates.

1907–*date*. Anthropological papers.

1881–*date*. Bulletin.

1912–*date*. Handbooks.

1901–*date*. Illustrated Guide Leaflets.

1893–1908. Memoirs.

1912–*date*. Memoirs. New series.

1913. Monographs; monograph ser. *8vo. vols. 1–3. illust. plates.*

1900–*date*. Natural History.

1869–*date*. Reports.

AMERICAN MUSEUM OF NATURAL HISTORY.
1917. Guide to the nature treasures of New York city. American museum of natural history—New York aquarium—New York zoölogical park and botanical garden—Brooklyn museum, botanic garden and children's museum. Prepared by George N. Pindar assisted by Mabel H. Pearson and G. Clyde Fisher. *12mo. pp. x+269. front. 61 figs. (3 maps, 6 plans.) T. of c.* [*New York.*]

An illustrated guide to the above Institutions. In the American Museum of Natural History the birds of the world numbering 13,000 known species will be found in the south central wing, pp. 50–4, whilst the local birds are in the west corridor, p. 58; and the habitat bird groups in the south central wing, pp. 74–85, with eight illustrations. References to birds in the other museums will be found on pp. 171–6, 234–7, and 243–8, with five illustrations.

AMERICAN NATURALIST, THE.
1867–*date*. Edited by A. S. Packard Jr., E. S. Morse, A. Hyatt and F. W. Putnam, (and afterwards) R. H. Ward, E. D. Cope, J. S. Kingsley, F. C. Kenyon, A. M. Brown. *8vo.* *Salem, Mass.*, etc.
Vol. I was published by the Essex Institute, Vols. II–IX by the Peabody Academy.

AMERICAN NATURE ASSOCIATION, WASHINGTON. *See* NATURE MAGAZINE.

AMERICAN NATURE STUDY SOCIETY. *See* NATURE-STUDY REVIEW.

AMERICAN ORNITHOLOGIST AND EXCHANGE.
1891. No. 1, March 1891. *8vo. 8 pp.* Devoted to the interests of all collectors. Editor: C. A. Morris; associate: J. F. Hoffman. All issued? Not seen by Compiler. Unimportant (Burns). (Wanting.) *Paw Paw, Ill.*

AMERICAN ORNITHOLOGISTS' UNION. *See* AUK.

1886. Committee on Protection of Birds. Bulletin. Nos. 1–2. *8vo.* *N.Y.*
No more published.

CONTENTS AND NOTES: No. 1. Destruction of our native birds. *16 pp.* Reprinted from the supp. to *Science*, Feb. 26, 1886. No. 160. 2. Protection of birds by legislation. *8 pp.* Reprinted from *Forest and stream*, Nov. 11, 1886.

This publication gives a complete account of the work of a vain conservation in the United States nearly forty years ago.

[**AMERICAN ORNITHOLOGISTS' UNION** (contd.)]

1886. The code of nomenclature and check-list of North American birds adopted by the American ornithologists' union. Being the report of the Committee of the Union on classification and nomenclature. (Coues, Elliott; Allen, J. A.; Ridgway, Robert; Brewster, William; Henshaw, H. W.) *8vo. pp. viii+392. T. of c. index.* *New York.*

A check-list of the species and subspecies of North American birds prepared by a committee of the American Ornithologists' Union appointed for the purpose. Original references are cited for generic, subgeneric, specific, and subspecific names and for accepted combinations, and the types of the genera and subgenera are indicated. References are given (by number) to the check-lists of Baird, 1858, Coues, 1873, Ridgway, 1880, and Coues, 1882, and the geographical distribution of each form is noted. This check-list occupies pp. 73–367, being preceded by a code of nomenclature drawn up by the committee for their own guidance in the preparation of the check-list.

1887. By-laws and rules and list of members. Dec. 1887. *8vo. pp. [2]+20.* *New York.*

Copy of the By-laws as they stood in 1887. An original copy is in the E.S.W. Library. These have since been amended from time to time, a copy of the latest rules appearing in the January number of the *Auk* for 1927.

1889. Check-list of North American birds. According to the Canons of nomenclature of the American Ornithologists' Union. Abridged ed. Revised. *8vo. 71 fol.* *Washington.*

This list contains not only the species and subspecies of the old Check-list, but also the additions and the changes of nomenclature made in the Supplement (published at the same time as the above), the additions being interpolated in their proper places. Another edition, the third (revised), was issued in August 1910.

1889. Supplement to the code of nomenclature and check-list of North American birds adopted by the American Ornithologists' Union; prepared by a committee of the Union. *8vo. pp. iv+23.* *New York.*

Embodies various changes in the A. O. U. check-list of 1886.

1889. Pocket Check-list of North American Birds.

1892. The Code of Nomenclature adopted by the American Ornithologists' Union. *New York.*

1895. Check-list of North American birds. Prepared by a Committee of the American Ornithologists' Union. (Coues, Elliott; Allen, J. A.; Ridgway, Robert; Brewster, William; Henshaw, H. W.) 2nd and revised ed. *8vo. pp. viii+345. (T. of c. and index both wanting in this copy.)* *New York.*

The second edition of the Society's Check-list (1st ed., 1886), embodying the changes in nomenclature and status of species which were made in the second to seventh supplements, published from time to time in the *Auk*, following the issuance of the revised edition of the Check-list in 1889. A third edition appeared in 1910.

1908. The code of nomenclature adopted by the American Ornithologists' Union. (Allen, J. A.; Brewster, William; Dwight, Jonathan, Jr.; Merriam, C. Hart; Richmond, Charles W.; Ridgway, Robert; Stone, Witmer.) Rev. ed. *8vo. pp. lxxxv. T. of c. index.* *New York.*

A revised edition of the first issue of 1886 (q.v.). In this many of the Canons have been more or less changed, usually by amplification without materially changing their purport or purpose; a few have been radically modified, chiefly by the adoption of the new 'Article 30' of the International Code of Zoölogical Nomenclature, which relates to the method of determining the types of genera.

1910. Check-list of North American birds. Prepared by a Committee of the American Ornithologists' Union. (Allen, J. A.; Richmond, Chas. W.; Brewster, William; Dwight, Jonathan, Jr.; Merriam, C. Hart; Ridgway, Robert; Stone, Witmer.) Third ed. (Revised.) *8vo. pp. 430. front. (map col. fold.). 1 map (fold). T. of c. index.* *New York.*

The third edition of the check-list embodying the changes published in the *Auk* in the eighth to fifteenth supplements to the Check-list. The plan of the work follows that of the 2nd edition 1895 (q.v.) with a few alterations. References are given to the original designation of the various generic types and the mode of such designation is indicated, the citations of original references to accepted combinations of names are omitted, type localities are given for the species and subspecies, and serial numbers, prominent in former lists, are subordinated.

1926. Exhibition of bird art held in connection with the 44th meeting of the American ornithologists' union, Victoria Memorial Museum, Ottawa, Canada, Oct. 11–31, 1926. *8vo. pp. 16.* [*Ottawa.*]

Catalogue of the 444 paintings, drawings, and photographs exhibited by members and others at the 44th Meeting—the first one ever held in Canada—of the American Ornithologists' Union. Included in the list is the Historical Collection loaned by the Emma Shearer Wood Library of Ornithology, McGill University Library, Montreal.

AMERICAN ORNITHOLOGY.

1901–6. For the Home and School. Monthly. *8vo.* *Worcester, Mass.*

Vols. I–VII, Jan. 1901 to July–August 1906. (All issued.) The periodical was discontinued owing to the death of the chief Editor.

The wrapper title-page (well illustrated by photo-engraved studies of birds and bird-life) shows several variations, especially in the subtitle. Sometimes part of this is printed diagonally or across the upper sixth of the title-page in (colored type larger than the major title, making it read 'American (BIRD MAGAZINE) Ornithology'; occasionally the larger lettering is confined to the word ORNITHOLOGY, thus reading 'American (ORNITHOLOGY) for the Home and School'. See cuts.

The Editorial title reads 'American Ornithology. A Magazine Devoted Wholly to Birds'.

Vol. I. 1901. Nos. 1–12. Jan.–Dec. *pp. 246. illust.*
Editor: C. Albert Reed.

Vol. II. 1902. Nos. 1–12. Jan.–Dec. *pp. 386. index. col. illust.*
Editor: Chester A. Reed. B.S.

Vol. III. 1903. Nos. 1–12. Jan.–Dec. *pp. xii+410. col. illust. index.*

Vol. IV. 1904. Nos. 1–12. Jan.–Dec. *pp. vi+336. col. illust. index.*

Vol. V. 1905. Nos. 1–12. Jan.–Dec. *pp. vi+308. col. illust. index.*

Vol. VI. 1906. Nos. 1–7. Jan.–July. *pp. 176.* [Suspended.]

The Publisher of all the volumes was Charles K. Reed, Worcester, Mass.

American Ornithology belongs to the better class of popular journals, and was profusely illustrated by both half-tone and colored engravings of decided merit. Although contributions to its columns were made chiefly by the Editors yet a number of well-known American ornithologists added their quota of observations, many of them of scientific value and interest.

←A.O.U. 1931. Check-list of North American birds. 4th ed. pp. 19 + 526.

AMERICAN OSPREY, THE.
1885. A monthly Magazine Devoted to Ornithology and Oology. *12mo.* Publisher, W. G. Talmage. *Plymouth, Conn.*

Vol. I. 1885. Nos. 1–2. May–June. *12 pp.* (All issued.)

Failing to secure second-class P.O. rates this short-lived periodical was merged with the *Agassiz Journal.* [Burns.]

AMERICAN OSPREY.
1890. *8vo.* Devoted to Ornithology and Oology. Published monthly. Unpaged. 4 pages to a number. Paul B. Haskell, ed. and pub. *Ashland, Ky.*

Vol. I. Nos. 1–12, 1890. Supplement to No. 7. About 50 pp. All issued.

Frank Burns describes it as a neat little sheet to which H. F. Andrews, B. S. Bowdish, and other well-known ornithologists contributed short articles.

AMERICAN PHILOSOPHICAL SOCIETY. *Philadelphia.*

1744–1833. Proceedings.

1838–*date.* Proceedings.

1769–1804. Transactions.

1818–*date.* Transactions. New Series. (Wanting.)

AMERICAN POULTRY ASSOCIATION.
1905. The American standard of perfection; a complete description of all recognized varieties of fowls, as revised by the American poultry association at its 28th annual meeting, at Rochester, New York, Nineteen hundred and four. *8vo. pp. (2)+290. 89 pl. 35 figs. T. of c. glossary.* [*Buffalo.*]

AMERICAN SCIENCE SERIES.
1889. . . . Zoology for high schools and colleges, by A. S. Packard. 7th ed., revised. *See* PACKARD, A. S.

AMERICAN SOCIETY OF MAMMALOGISTS. (Founded 1919.)
The organ of the Society is the well-known Journal of Mammalogy. Vol. I. *8vo,* 1919→ (q.v.). *Baltimore.*

1924–*date.* Monographs. No. 3 (1927?) is Animal life of the Carlsbad Cavern, by Vernon Bailey.

AMERICAN SOCIETY OF NATURALISTS, Records.
1883–*date.* From 1883–5 known as the Society of Naturalists of the Eastern United States.

AMERICAN SOCIETY OF ZOÖLOGISTS. *See* ANATOMICAL RECORD.

THE AMERICAN SPORTSMAN'S LIBRARY.
1903. The water-fowl family. *See* SANFORD, LEONARD CUTLER.

1902. Upland game birds. *See* SANDYS, EDWYN.

AMERICAN STANDARD OF PERFECTION. (Fowls.)
1905. *illust.*

AMHERST OF HACKNEY, MARY ROTHES MARGARET CECIL (born Tyssen-Amherst), *Baroness* [1857–1919].

1904. Bird notes from the Nile. By Lady William Cecil. *12mo. pp. xii+113. front. (col.). 12 pl. 27 figs. T. of c.* [*London.*]

These notes with but few exceptions are limited to those birds which are residents in Upper Egypt, and which the author saw above Luxor and in Nubia, although a few are mentioned during a short visit to Khartoum on the Blue Nile, and also on the White Nile above Omdurman. A list of species is given at the end of the volume, pp. 75–113, with English, Latin, and Arabic names, Resident or Migratory, locality and range, etc.

AMSTERDAM. *See* (K.) NEDERLANDSCH INSTITUT VAN WETENSCHAPPEN, etc.

AMSTERDAM. KONINKLIJKE AKADEMIE VAN WETENSCHAPPEN. Verslagen en Mededelingen, etc. (Afdeeling Natuurkunde).
1853–*date.*

ANALES D. ACADEMIA DE CIENCIAS MEDICAS, FISICAS Y NATURALES DE LA HABANA. 1865–*date.* *See* ACADEMIA DE CIENCIAS . . . HABANA. (Wanting.)

ANALES D. ACADEMIA MEXICANA DE CIENCIAS EXACTAS, FISICAS Y NATURALES. 1903–*date.* *See* ACADEMIA MEXICANA, etc.

ANALES DE CIENCIAS NATURALES (earlier **Anales de historia natural**).
1799–1804. Vols. 1–7 (all pub.). *Madrid.*

ANALES DE HISTORIA NATURAL. *See* ANALES DE CIENCIAS NATURALES, MADRID.

ANALES DE LA SOCIEDAD ESPAÑOLA DE HISTORIA NATURAL. *Madrid.*
1872–5. Vols. I–V.

ANALES DE ZOOLOGIA APLICADA. *Santiago de Chile.* **1914–*date.*** (Wanting.)

ANATOMICAL RECORD. (Includes **Proceedings of American Society of Zoologists.**)
1906–*date.* *Baltimore, Philadelphia.*

ANATOMICAL SOCIETY OF GREAT BRITAIN. *See* JOURNAL OF ANATOMY.

ANATOMISCHE HEFTE.
1891–1921. Bd. 1–59. Hefte 1–100. Contd. as the Zeitscrift f. d. gesamte Anatomie.

ANATOMISCHER ANZEIGER.
1886–*date.* *Jena.*

ANDERSEN, C. H.
1861. Zoologins Historia foere Linnaeus. *Lund.*

ANDERSEN, JOHANNES CARL [1873–].
1926. Bird-song and New Zealand song birds. *8vo. pp. (12)+215. front. 18 pl. T. of c. bibliogr. index.* *Auckland.*

Human song gives wide expression to the emotions of love, of praise, of joy, of good-fellowship. That which is true of human song is true, in a larger degree, of bird-song; nor does this ascribe to birds a greater aesthetic sense than has already been ascribed to them by those who maintain their song is purely sexual. This roughly sums up the views of the author of this interesting book on bird-song which should be read by all those interested in the subject. The present copy is subscriber's No. 77, autographed.

ANDERSEN, KNUD. **1912.** *See* BR. MUS. NAT. HIST.

ANDERSON, JOHANN [1674–1743].

1746. Nachrichten von Island, Grönland und der strasse Davis zum wahren nutzen der wissenschaften und der handlung. Mit kupfern, und einer nach den neuesten und in diesem werke angegebenen entdeckungen, genau eingerichteten landcharte. Nebst einem vorberichte von den lebensumständen des herrn verfassers. *20 cm. 15 pp. l., 328, [5] p. front. 4 fold. pl., fold. map.* 'Vorbericht' signed: Z * *. [i.e. J. D. Winckler]. *Hamburg.*

ANHANG: Dictionariolum (Danish-German-Eskimo); Appendix formularum loquendi usitatissimarum [etc.]: pp. 285–328.

This is the first edition of a fundamental work on Iceland and Greenland.

ANDERSON, JOHN [1833–1900].

1875. *See* BLYTH, E.

[**1876**]. On the osteology and pterylosis of the spoon-billed sandpiper (Eurynorhynchus pygmaeus, Linn.). *med. 4to. pp. 213–18. 1 pl. (No. 35). 2 figs.* [*London*].

Observations founded on a specimen procured at Chittagong in Eastern Bengal in 1856, which reveal only one important feature wherein this peculiar little bird structually differs from the genus Tringa, namely the singular expansion of the bill. (Excerpt from the *Linnaean Society Transactions*, 2nd Ser., Zoology, vol. 1, 1877.)

1878. Anatomical and zoological researches: comprising an account of the zoological results of the two expeditions to western Yunnan in 1868 and 1875; and a monograph of the two cetacean genera, *Platanista* and *Orcella*. *2 vols. 33 cm. illust., lxxxi* (i.e. 85) *pl. (part col., 2 fold.). fold. map.* Vol. 2: Plates. *London.*

See also WESTERN YUNNAN EXPEDITION.

1898–1907. Zoology of Egypt. *4 vols. 4to. London.*

A very important addition to our knowledge of Egyptian zoology. Vol. I is entirely devoted to Reptilia and Batrachia, 1898, by the editor, pp. 65+371, 60 col. pl., 1 map, figs. in text. Vol. II, Mammals, also by Anderson, but revised and completed by W. E. de Winton, pp. 17+374, 66 col. pl., 1 map and portrait, figs. in text, 1902. Vols. III and IV, Fishes of the Nile, by G. A. Boulenger, 1 vol. text, 1 vol. pl., pp. 51+578, 103 col. pl., 1 map, figs. in text. Vol. III was published at the expense of the Egyptian Government.

1898. Zoology of Egypt: Reptilia and Batrachia. *4to. pp. lxv, 371. 60 pl. (col.). 1 map. text illust.*

Separately published first volume of Author's *Zoology of Egypt.*

1902. Zoology of Egypt: Mammalia. Rev. and completed by W. E. De Winton. *pp. 3 l., [v]–xvii, 374. front. (port.). illust. 66 pl. (part double, part col.). map.* *London.*

Separately published vol. II of the Author's *Zoology of Egypt.*

ANDERSON, P.

1913. Birds in the Island of Tiree.

ANDERSON, RUDOLPH MARTIN.

1919. The brant of the Atlantic coast. *sm. 8vo. pp. 4.* *Ottawa.*

A short discussion of the status of the Atlantic coast brant (*Branta bernicla glaucogastra*) which has caused considerable controversy among both sportsmen and ornithologists, owing partly to its remote breeding grounds where it meets the summer range of the Black Brant (*Branta nigricans*), this fact no doubt being responsible for the uncertainty existing as to its exact status. The present pamphlet appears under the auspices of the Dominion Parks Branch, Department of the Interior, Ottawa, Ont.

1929. *See* HANTZSCH, BERNHARD.

ANDERSONIAN NATURALISTS SOCIETY' GLASGOW, Annals. **1891**–*date.*

ANDERSSON, CHARLES JOHN [1827–67].

1856. Lake Ngami; or Explorations and discoveries during four years' wanderings in the wilds of south western Africa. Map. Illust. representing sporting adventures, subjects of natural history, devices for destroying wild animals, etc. 2nd ed. *roy. 8vo. pp. xviii+546. front. 15 pl. (lithogr.). 1 map (fold.). 40 figs. T. of c. 2 indexes.* *London.*

A record of the author's experiences during two expeditions in the wilds of the South-western parts of Africa, during the years 1850–4. References to birds are numerous and occur throughout the book, with a chapter on the natural history of the Ostrich, pp. 253–69, with plate depicting coursing young ostriches. The first edition appeared also in this same year, with an American issue in 1857.

1857. Lake Ngami; or explorations and discoveries. With an introductory letter by John Charles Fremont. *pp. (2)+v–xxiii+(1)+433. front. 15 pl. 40 figs. T. of c.* *New York.*

In this American edition the main text is the same as the first. The plates are inferior, not being lithographed, the paper is of a poorer quality, and no index or map is supplied.

1872. Notes on the birds of Damara Land and the adjacent countries of South-West Africa; ed. by J. H. Gurney. *8vo. pp. xlviii+394. front. (map col.). 4 pl. bibliogr. index.* *London.*

A descriptive account compiled by Gurney from Andersson's notebooks of 428 species of birds in his collection at the time of his death.

1873. The lion and the elephant; ed. by L. Lloyd. *8vo. pp. 12+386. pl.* *London.*

A posthumous publication from the Author's notes.

1875. Notes on Travel in South Africa. Ed. by L. Lloyd. *8vo.* *London.*

Edited from notes by the author after his death.

ANDERSSON, K. A. **1905.** *See* NORDENSKJÖLD, N. O. G.

ANDERSSON, L. G.

n.d. Reptiles and batrachians (from Egypt). *illust. See also* CORNISH, C. J., 1903.

ANDERTON, BASIL [1864–], and **GIBSON,** W. H.

[**1901**]. Catalogue of the Bewick collection. *pp. (4)+iv+(2)+110. front. (portr.). 9 pl. (1 portr.). 4 figs. T. of c. index.* *Newcastle-upon-Tyne.*

This collection contains not only the works of Thomas Bewick, but also some excellent examples of John Bewick's skill, and that of some of Thomas Bewick's pupils too (Luke Clennell, William Hervey, etc.) are charmingly represented. In the Catalogue the arrangement of the books is, in its main outline, chronological. That is to say, Bewick's earliest works come first. The date of the first edition of each work is taken as a starting-point. There are then recorded in a single group all subsequent editions in the collection. When that group is finished, the Catalogue harks back to the first edition of the next earliest work; and so on. The frontispiece is a portrait of Thomas Bewick, the other being that of the donor of the Collection, John William Pease. There is also a beautiful woodcut of Bewick's masterpiece, 'The Chillingham Bull', 1789.

ANDRÉ, E.

1904. A Naturalist in the Guianas. With a Preface by J. Scott Keltie. port. of Author. 2 col. pl. of Birds by Keulemans. *8vo. map. 30 pl.*

A scarce and interesting work.

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→ Annalen der Naturphilosophie. (Leipzig) 1901–14, vols. 1-13, No. 2.

ANDREWS, CHARLES WILLIAM [1866–1924].
1899. On the extinct birds of Patagonia. 1. The skull and skeleton of Phororhacos inflatus Ameghino. *folio. pp. 32. illust. pl.* *London.* London Zoological Society Trans., vol. 15, pt. 3. Bound with Newton, Alfred. On a picture supposed to represent the Didine bird.

1900. A monograph of Christmas Island (Indian Ocean): physical features and geology. Descriptions of the fauna and flora by numerous contributors. *8vo. pp. xiii+(3)+337+(20). 21 pl. (col.). 1 map (col. fold.). 27 figs. T. of c. bibliogr. append. index.* *London.*
A monograph (British Museum) embracing the scientific results of the explorations in 1897–8. The birds, pp. 37–50, are by Mr. Bowdler Sharpe, accompanied with notes by Andrews, and four coloured plates by Keulemans.

1906. A descriptive catalogue of the Tertiary *Vertebrata* of the Fayum, Egypt. Based on the collection of the Egyptian government in the Geological museum, Cairo, and on the collection in the British museum (Natural history). *roy. 4to. pp. xxxvii+(1)+324+(52). front. 26 pl. 98 figs. 1 map. bibliogr. 2 indexes.* *London.*
The small portion relating to the class Aves will be found on pages 258–60, with three illustrations.

1910–1913. *See* BR. MUS. NAT. HIST.

ANDREWS, JAMES [1801?–76]. *See* [?1854–6] COTTON, JOHN. Beautiful birds.

ANDREWS, ROY CHAPMAN [1884–]; (**OSBORN,** HENRY FAIRFIELD).
1926. On the trail of ancient man; a narrative of the field work of the Central Asiatic expeditions, by Roy Chapman Andrews, SC. D., leader of the Central Asiatic expedition of the American museum of natural history in coöperation with 'Asia magazine', with an introduction and a chapter by Henry Fairfield Osborn. 58 photographs by J. B. Shackelford. *roy. 8vo. pp. xxiv+375. front. (portr.). 60 pl. 1 fig. (map). T. of c. index.* *New York.*
References to birds are infrequent but when occurring are of great interest. At the 'Flaming Cliffs' sand-grouse were in countless thousands, pp. 178–9; Fossil eggs of the extinct giant ostrich Struthiolithus were found, pp. 272 and 298.

ANECDOTES OF BIRDS, &c. *See* ANONYMOUS, 1809.

ANGLER'S NOTEBOOK AND NATURALIST'S RECORD. 1884–6. *London.*

ANGLES, RAOUL. *See* VOYAGES, FRENCH. VOYAGE EN ISLANDE, 1838–52.

ANHALT. Dessauer Naturhistorischer Verein fuer Anhalt.
1840–73. Verhandlungen. 1–31 (all pub.)

ANIMAL LIFE AND WORLD OF NATURE.
1902–4. (Wanting.) *London.*

ANIMAL RESCUE LEAGUE. *Boston.*
1900–*date.* Report. *See also* OUR FOURFOOTED FRIENDS.

ANIMALS: PHOTOGRAPHS FROM LIFE IN ALL PARTS OF THE WORLD.
New York, Chicago.
1898–1900. Continues Nature and Art.

ANIMALS' DEFENDER. *Boston.*
1895–1905. (Wanting.)

ANIMALS' DEFENDER AND ZOOPHILIST. (**National Anti-Vivisection Society.**)
1881–*date.* *London.*

ANIMALS' FRIEND. (**Animals' Friend Society.**) 1833–41. *London.*

ANIMALS' FRIEND. 1894–*date.* *London.*

ANIMAL WORLD. (**Royal Society for the Prevention of Cruelty to Animals.**) 1869–*date.* *London.*

ANKENBRAND, L.
1912. Ausländische Stubenvögel. 2te. Auf. *illus.*

ANNABERG-BUCHHOLZER VEREIN FÜR NATURKUNDE.
1865–*date.* Bericht.

ANNAES DE SCIENCIAS NATURAES.
Oporto, Portugal.
1894–1906. 1–10 (all pub.).

ANNALEN DER NATURGESCHICHTE.
Göttingen.
1791. Succeeded by Beitraege zur Naturgeschichte.

ANNALEN DER NATURPHILOSOPHIE.
1901–21. (Wanting.) *Leipzig.*

ANNALEN DES K. K. NATURHIST. MUSEUMS. *Wien.*
1886–92. Bd. 1–35.

ANNALES D. BUDAPEST. Historico Naturalis Musei Nationalis Hungarici.
1903–22. *See* BUDAPEST. MAGYAR NEMZETI MÚZEUM.

ANNALES FRANÇAISES ET ÉTRANGÈRES D'ANATOMIE ET DE PHYSIOLOGIE, APPLIQUÉES À LA MÉDECINE ET À L'HISTOIRE NATURELLE. 1837–9. *Paris.*

ANNALES GÉNÉRALES DES SCIENCES PHYSIQUES.
1819–21. Par J. B. Bory de St. Vincent, A. Drapiez, et J. B. Van Mons. Vols. 1–8. All published. With 130 plates, many being colored. Contains various Zoological papers. *Bruxelles.*

ANNALES D'HISTOIRE NATURELLE.
1908–13 (all pub.). *Paris.*

ANNALES MUSÉE DU CONGO. *See* ANNALES DU MUSÉE DU CONGO.

ANNALES DU MUSÉE DU CONGO PUBLIÉES PAR ORDRE DU SECRÉTAIRE D'ÉTAT. Série Zoologie. 1898–*date.* *Bruxelles.*

ANNALES DU MUSÉE DU CONGO.
1906–7. Études sur la Faune Mammalogique du Congo, par Paul Matschie, Tome I. 5 pl. 2 col. (Zoologie, Série V); Contributions à la Faune du Congo, Tome I, Okapia, par Julien Fraipont. 4 col. pl. and 28 others in lithograph and heliogravure. *1 vol. roy. 4to.* *Bruxelles.*

ANNALES DU MUSÉE D'HISTOIRE NATURELLE DE MARSEILLES.
1882–*date*. (Wanting.)

ANNALES DE PALÉONTOLOGIE. 1906–*date*. *Paris*.

ANNALES DES SCIENCES NATURELLES. *Paris*.
1824–31. Zoologie. Series 1, with Atlas 1–12.
1834–1917. Zoologie. Series 2–9.
1918–*date*. Zoologie. Series 10.

ANNALES DE LA SOCIÉTÉ DES SCIENCES NATURELLES DE LA CHARENTE. *See* LA ROCHELLE, Annales de l'Académie des Sc. Nat. (Wanting.)

ANNALES DE LA SOCIÉTÉ ROYALE MALACOLOGIQUE DE BELGIQUE. *See* ANNALES DE LA SOCIÉTÉ ROYALE ZOOLOGIQUE DE BELGIQUE.

ANNALES DE LA SOCIÉTÉ ROYALE ZOOLOGIQUE DE BELGIQUE.
1863–1927. Tomes 1–57. Commenced as Annales de la Société royale malacologique de Belgique in 1863 and continued under the title given as above with the addition 'et malacologique'.

ANNALES DE LA SOCIÉTÉ ZOOLOGIQUE SUISSE ET DU MUSÉE D'HISTOIRE NATURELLE DE GENÈVE. *See* REVUE SUISSE DE ZOOLOGIE.

ANNALES DE L'UNIVERSITÉ DE LYON. Nouvelle Série.
1899–*date*. Fasc. 1–36.

ANNALI D. ACCADEMIA DEGLI ASPIRANTI NATURALISTI. 1843–87. *See* ACCADEMIA . . . NAPOLI. *Napoli*.

ANNALI D. MUSEO CIVICO DI STORIA NATURALE D. GENOVA.
1870–*date*. *See* GENOA.

ANNALI DEL MUSEO IMPERIALE DI FISICA E STORIA NATURALE DI FIRENZE.
1908. Vol. I. *4to*.

ANNALI DI STORIA NATURALE. *Bologna*.
1829–30. Continued as Nuovi Annali delle Scienze Naturali.

ANNALS OF THE ANDERSONIAN NATURALISTS' SOCIETY. 1891–*date*. *Glasgow*.

ANNALS OF APPLIED BIOLOGY; the official organ of the Association of economic biologists.
1914–*date*. Vols. 1–18. *illust. 4to*. *London*.

ANNALS AND MAGAZINE OF NATURAL HISTORY. 1837–*date*. *London*.
This very important, indeed indispensable, zoological periodical began its useful career as the *Magazine of Zoology and Botany*, Edinburgh, 1837, with Sir W. Jardine as chief editor. In 1838 it was merged with Sir W. J. Hooker's *Companion to the Botanical Magazine* and appeared as the *Annals of Natural History* (when the office of publication was transferred to London) until 1841 when its full title became *The Annals and Magazine of Natural History including Zoology, Botany, and Geology*. Sir W. Jardine ceased to be principal Editor in 1857, since which date it has been under the editorial management of a distinguished array of British naturalists.

ANNALS OF NATURAL HISTORY. *See* ANNALS AND MAGAZINE OF NATURAL HISTORY.

ANNALS OF NATURE. *See* RAFINESQUE-SCHMALTZ, C. S. 1820.

ANNALS OF PHILOSOPHY, NATURAL HISTORY, etc. **1801–4.** (Wanting.) *London*.

ANNALS OF SCOTTISH NATURAL HISTORY. *Edinburgh*.
1892–1911. *See also* SCOTTISH NATURALIST.

ANNANDALE, THOMAS NELSON [1876–]; and **ROBINSON,** HERBERT C.
1903–7. *Fasciculi Malayenses.* Anthropological and zoological results of an expedition to Perak and the Siamese Malay states, 1901–2. 4 parts. *4to. col. illust.* (Wanting.) *London*.
A valuable contribution to Asiatic faunal history, as the result of an expedition to Perak (one of the Federated Malay States) and the Siamese Malay States in 1901–2. Part of vol. I (1903) is devoted to Mammals, by J. L. Bonhote; Batrachians and Reptiles, by G. A. Boulenger; Fishes, by J. Johnstone (Marine) and G. A. Boulenger (Freshwater). The Birds are described by W. R. O. Grant in vol. II.

ANNÉE BIOLOGIQUE. Comptes rendus annuels des travaux de biologie gén. publiés sous la direction de Yves Delage. 1895–*date*. *Paris*.

ANNOTATIONES ORNITHOLOGICAE ORIENTALIS. *Tokyo*.
1927–*date*. Vol. I, No. 1; No. 2, Jan. **1928.**

ANNOTATIONES ZOOLOGICAE JAPONENSES. (Societas Zoologica Tokyonenses.) 1897–*date*. *Tokyo*.

ANNUAIRE DU MUSÉE ZOOLOGIQUE DE L'ACADÉMIE D. SCIENCES DE ST. PETERSBOURG.
1896–*date*. *8vo*. In German, French, English, and Russian. *St. Petersburgh*.
This important periodical is still published by the Soviet government with a slight change of title.

ANNUAL RECORD OF SCIENCE AND INDUSTRY. 1871–8. *New York*.

ANNUAL REPORT OF THE ACCLIMATISATION AND ORNITHOLOGICAL SOCIETY OF LONDON.
1861–8. Vols. I–VIII. [All issued?]
Although this Year Book is not exclusively devoted to Ornithology yet the larger number of its contributors and contributions deal with birds.

ANNUAL REPORT OF THE ALLEN BIRD CLUB.
1912–15 and continuation. Fourth Report. For 1915. pp. 37. Issued Jan. 1916. Part MS. with printed 'Suggested outline for the Observation of Birds', and a 'Reference List of Allen Club Bird Books and Magazines'. *Springfield, Mass*.
This periodical report shows the Allen Club to be an active and effective organization for the cultivation of Bird Study and Protection among its hundred-odd members as well as a propagandist society in Springfield.

← Quinpter, P. 1931. Wilderness Ways. 8vo. pp. 304, col. front., 12 half-tone illus., line decorations by C. L. Buell. London.

→ Annals of the Carnegie Museum. Complete set. Vol. 14 - 1922.

ANNUAL REPORT OF THE BIRMINGHAM NATURAL HISTORY AND MICROSCOPICAL SOCIETY.

1872–94. All published. The *Reports* for 1886 and succeeding years were published in the *Midland Naturalist*. *See also* BIRMINGHAM NAT. HIST. AND MIC. SOCIETY.

ANNUAL REPORT OF THE DIVISION OF ORNITHOLOGY. COMMONWEALTH OF MASSACHUSETTS.

1909–*date.* *Illust. 8vo. Covers.* Mostly published separately, as part of the annual report of the Dept. of Agriculture. By Edward H. Forbush, Director. Reports I–XIII for 1909–21.

Boston, Mass.

[Report for 1920.] *47 pp. illust. T. of c.* Issued in 1921. Change of title to First Annual Report of the Division of Ornithology. Being a reprint of a part of the Annual Report of the Dept. of Agriculture for the year ending Nov. 30, 1920. [Reprint for 1921.] *41 pp. illust. T. of c.* Issued in 1922. Change of title to Annual Report of the Division of Ornithology. For the year 1921.

[ANNUAL] REPORT OF THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS.

1891–*date.* [Nos.] 1 to 30.

The first report (London, Oct. 1891. *12 pp. small 12mo*) was followed by others (*8vo. covers*) regularly every year until the present time. Besides business matters connected with the Society there are valuable contributions to the history of bird protection. See also *Bird Notes and News*; as well as *Proceedings of the Roy. Soc. or the Protection of Birds.*

ANONYMOUS. (**Titles in alphabetical sequence.**)

1746. Abbildungen von Elefanten. *9 figs. 1 sh. with text.*

1773. Aedonologie ou traité du Rossignol franc ou chanteur, etc. *Paris.*

This work is sometimes attributed to Arnault de Nobleville.

1809. Anecdotes of birds; or, Short accounts of their habits in a state of nature, collected from the best authors on natural history with figures engraved on wood. *fcap. 8vo. pp. xii+123. 9 figs. T. of c.* *London.*

The nine woodcuts are attributed to Bewick, the present copy being from the Mullens library.

1831. (The) Architecture of Birds. *12mo. illust.* Issued by the Society for the Diffusion of Useful Knowledge. *London.*

A semi-popular but well-written book chiefly on birds' nests.

1876. (The) Arctic world: its plants, animals and natural phenomena. With a historical sketch of Arctic discovery. *roy. 4to. pp. viii+9–276. front. 15 pl. 102 figs. T. of c. index.* *London and N.Y.*

In the above pages it has been the writer's object to bring together just such particulars as might enable the intelligent reader to realize for himself the true character of the world which extends around the North Pole. The ornithology of the region is treated on pages 96–106 with eight illustrations.

1823. (The) atlas of nature, being a graphic display of the most interesting subjects in the three kingdoms of nature for study and reference. *folio. pp. iv+40. 83 pl., mostly colored. T. of c.* *London.*

This descriptive atlas of natural history objects contains 13 colored figures (rather well done) of curious birds with their nests and eggs. These include the hoopoe, tailor-bird, skylark, etc.

1836. Aves Britannicae. A systematic Catalogue of British Birds. *8vo.* *Manchester.*

(? **1780**). Bāz-nāma. (Persian Manuscript.)

A concise Persian treatise on the diseases of the falcon, apparently abbreviated from a larger treatise. The name of the author, the date of composition, and the title of the original treatise from which the present one has been abbreviated, are not given. Apparently no other copy is known. The treatise gives a brief description of diseases, and several recipes for their treatment. Also many recipes are included for the general upkeep and hygiene of the falcon. The copy dates apparently from the end of the XVIIIth century, and has been transcribed somewhere in the Western part of India. The name of the copyist, the place of copying, etc., are not mentioned. Condition is fairly good, except for occasional wormholes. (W. I.)

ca. **1905.** Bāz-nāma. Tract on falconry. Persian MS. *8vo. Ff. 11.* Fragment. No jadwals.

1762. (The) bird fancier's necessary companion, and sure guide. Pts. 1–2. *2 vols. in 1. 12mo.* *London.*

CONTENTS: Pt. 1. Curious remarks on the nature, sex, management and diseases of English song-birds. 2. Easy way of breeding canary birds and the best method of 'chusing' and keeping them both for breeding and song.

1728. (The) Bird Fancier's Recreation. Being Curious remarks On the Nature of song-birds, with Choice instructions Concerning The Taking, Feeding, Breeding and Teaching them, and to know the Cock from the Hen. Also The Manner of taking Birds with Lime-Twigs, and the Preparations necessary thereto. With an account of the *Distemper*; incident to Song Birds, and the Method to cure them. *18mo. pp. 96.* Curious frontispiece. *London.*

An odd little book (from the Mullens library) full of shrewd observations on the care of cage-birds.

n.d. Bird Keeper's Guide and Companion, etc. *Illust. 12mo.* (Canaries.)

[*ca.* **1914**]. Birdland; the nature study book. *ob. 8vo.* [*5*] *pl. (col.).* [*Chicago.*]

In this book the entire heads of the different birds have been cut from the heavy board leaves and the circular pieces are of the proper size and bevel to fit into any of the holes. Intended especially for children, teaching them to find the correct heads for the different birds.

1905. Birds I have seen. *16mo. pp.* [*22*]+*169.* *New York.*

A pocket ornithological note-book, for jotting down impressions of any unfamiliar bird seen. The blank pages have the following printed headings for recording impressions, viz.: Date, where seen, appearance, habits, the female, its note, its nest, common and scientific name, family, and remarks. The first edition appeared in 1901.

1888. (The) birds of the Stonyhurst district. Reprinted from the *Stonyhurst Magazine*, July 1888. *8vo. pp. 14. 1 map (on cover).*

1851. (The) book of birds; intended for the amusement and instruction of young people. Illust. with 16 woodcuts. *16mo. pp. xiv+21–200. front. T. of c.* *Philadelphia.*

Popular accounts of 60 interesting birds, with illustrative anecdotes.

n.d. Book about Birds. *6 col. pl.*

1832. (A) book of ornithology for youth . . . *Boston.*

1848. Boy's Own Book of Sports, Birds and Animals. *Illust.* *N.Y.*

n.d. (The) British aviary, and bird keeper's companion; containing copious directions for propagating the breed of canaries: also, goldfinch and linnet mules. *16mo. pp. xii+13–80. front. 17 pl. index.* *London.*

[**ANONYMOUS.** (**Titles in alphabetical sequence.**) (contd.)]

1840. British Birds. *12mo. 24 col. pl.* *London.*

n.d. (The) British bird toy and painting book. *ob. 4to. no t.p. pp.* [*16*].

A useful guide for the amateur bird-illustrator.

1799. Canary Bird, a moral fiction, etc. *London.*

1836. (A) Catalogue of the Ashmolean Museum, etc. *1 vol. 4to. pp. 12, 188.* *Oxford.*

1829. Catalogue des oiseaux composant le cabinet de M. le Comte de Rioucour. *Nancy.*

? 1500. *Chin hsiu wan hua ku.* A classified encyclopedia, including material on all kinds of animals, fishes, insects, etc.; *Ch'ien chi* (1st part) chüan 36–7, and chüan 39; *Hou chi* (2nd part) chüan 39–40; published in the Ming Dynasty (1368–1644). *Size 24·2 × 16·1 cm.* [*G.*]

(*ca.* **1720–40.**) Collection d'oiseaux et d'animaux peints d'après Nature. *1 vol. 4to.*

A unique collection of water-colors by an unknown artist.

1813. (A) complete natural history; containing correct delineations of upwards of three hundred animals, in which are included Quadrupeds, birds, fishes, insects, etc. Exhibiting in a small compass a full description of the numerous creatures which compose the Animal Kingdom, with their varieties and peculiarities. Illustrated by accurate engravings on Wood, by the first artists. *8vo. pp. xii + 13–336. 325 figs. T. of c.* *London.*

This work on Natural History has been specially written for the 'Fair Sex', all matter offensive to the eye of female modesty being omitted, so the introduction tells us. It is divided into four classes Quadrupeds—Birds—Fishes—Reptiles and Insects. The portion relating to birds is contained on pages 127–246, with 113 illustrations in the text.

1551. Contrafactur aller vierfüssigen Thier-Eygentliche und gantz artliche contrafactur (4 lines).
(Colophon:) Getruckt zu Strassburg durch Balthassar Becken Erben DMLI. *Sm. fol.* Gothic letter. 32 leaves, 61 large, virile woodcuts ($5\frac{3}{8} \times 4\frac{1}{8}$ ins.) of animals. Bound by Riviere. No letterpress except full-page title and names of animals. On the recto of first leaf, in script by a contemporary hand: Franciscus Rossius Noëus, Chirurgus paris, 1551.

Excessively rare, not in British Museum, nor listed by Banks, Brunet, Graesse, nor in the *Catalogus Bibliothecae historico-naturalis.*

n.d. Domestic Habits of Birds. *82 illust. 8vo.*

1794. Faras-nāma. Persian manuscript. Colored illust. On the Horse. A.H. 1208. *8vo.* (?) *Shiraz.*

This unique MS. was purchased for the Blacker Library by W. Ivanow in North India and is described by him as of fine caligraphy. Not only are Eastern variants of *Equus* described and depicted but their diseases and modes of treatment are given and pictured.

1823. Faras-Nāma-i-Hisāmī. Persian manuscript. A short treatise in verse on the Horse, divided into 54 chapters. The original was composed in 847 A.H. (1443 A.D.).

It is apparently a unique copy, or at least quite unknown to bibliographers, as it is not signed and no information about it can be obtained from other catalogues. It is a well-written copy and the text is complete. (W. I.)

[*ca.* **1600.**] Ganse-Logia, Das ist der Gänse wunderbarliche Geburt, löbliches Leben etc. *18mo. n.d. n.p. pp. 72. illust. title.* Pt. 7 of 'Die neu-eröfnete lustige Schaubühne'. 'Gedruckt in diesem Jahr.'

This curious little treatise on the Goose—especially St. Martin's goose—is an exceedingly rare contribution to the subject.

n.d. Guernsey, Sark, etc.; a handbook for invalids, geologists, naturalists, archaeologists and others. *16mo. pp. 29.* *Guernsey.*

A view of the general character of the islands. A list of the birds will be found on pp. 28–9.

[*ca.* **1860.**] Habits of birds. *16mo. pp. xvi + 379. 82 figs. (woodcuts). T. of c.* *London.*

Title-page mutilated, with no indication of author. The contents are arranged under the following headings: (1) Habits of cleanliness, (2) Birds solitary and gregarious, (3) Pairing, (4) Structure and colour of eggs, (5) Hatching, (6) Evolution of chick, (7) Sheltering, feeding, and training of young, (8) Songs and mimicry, (9) Longevity of birds.

1875. Half hours in woods and wilds; adventures of sport and travel. *illust. 12mo. pp. xi + (1) + 308. front. 21 pl. 60 figs. T. of c.* *London.*

The scenes are mostly laid in North and South America, Africa, and Europe. Birds are referred to under the following headings: 'In the forests of the upper Amazon', pp. 68–102; 'In Britain and Everywhere', with rooks and their relations, pp. 105–22; 'In English Woods', with birds and their homes, pp. 125–46. The work forms one of the volumes in 'The Half Hour Library'.

1846. Handbuch der Ornithologie; hrsg. von einem Freunde der Ornithologie. *8vo. index. 4 pl. pp. vi + 200.*
CONTENTS: Erster Theil: Das System und die Gattungen. [all pub.?] *Kopenhagen.*

A useful and popular manual, brief and correct, of which the Compiler has seen only the above first part. From the Godman library.

1865–6. Histoire Naturelle de Saône-et-Loire. Vols. I–II.

1829. *See* HUSĀMĪ. Persian MS. poem on the horse.

After **1873.** 'Ilāju'l-bahā'im. (Hindustani manuscript.)

A text-book of veterinary art, based on a European system; an official publication, composed by a commission, which was held originally at Allahabad, in 1873. The text is apparently a translation from English, and may be very useful for references concerning the interpretation of the native terminology.
Lithographed at Haydarabad in the Deccan; the date is not mentioned. *pp. 98.* (W. I.)

1888. 'Ilāju'l-bahā'im. (Hindustani lithograph.)

Another edition, or a revised version of the same official treatise on veterinary art as the preceding. Most probably it is based on a different translation of the original text, because the phraseology of the two does not often agree.
Lithographed at Lucknow, 1888. *pp. ii and 96.* (W. I.)

1674. Instruction pour élever, nourrir, dresser, instruire & penser toutes sortes de petits oyseaux de volière, que l'on tient en cage pour entendre chanter; avec un petit traité pour les maladies des chiens. *nar. 24to. pp.* [*12*] + *84. vignette. 4 figs. (tail pieces). T. of c.* *Paris.*

This small calf-bound volume on the methods of caring for song-birds and making them sing was published by Charles de Sercy, by privilege granted by the king of France, the author remaining anonymous. A chapter is also given to the treatment of canine diseases.

1835. (An) introduction to the study of birds; or, The elements of ornithology, on scientific principles, with a particular notice of the birds mentioned in Scripture. *8vo. pp. viii + 584. illust. in the text. T. of c.* *London.*

1830. (The) Journal of a Naturalist. *8vo.* 3rd ed. *London.*

A delightful volume written, as the unknown author tells us, under the influence of Gilbert White.

↑ See Duncan, P. B., ϕ. [who is the author.]

++> [June, 1885] La Chasse au Vol. Niort. Sm. Folio.

← 1739. Description of some curious and uncommon creatures. 16 copper plates.

→ 1829. Discription of more than three hundred animals .... appendix - allegorical and fabulous animals. 476 pp. Illust. wood cuts. h and m.

← 1833 The Field Book. num. Ill. pp. 508. Encyclopedia of Birds, Sports etc London.

1477. Lumen animae. See p. 443, 2nd col.

+ See, also. Miscellanea curiosa etc. 1670–1689 – quite a different pub

Copy for Miss Harrington.

ORDER DEPT.
RECEIVED
JUN 28 1932
ANSWERED

Attention Miss Harington

after summer vacation c.a.s.

Twenty-fourth June
1 9 3 2

Messrs. Wheldon and Wesley,
2, 3, 4, Arthur Street,
New Oxford Street,
London, W. C. 2, England.

Dear Sirs:

Continuing my letter to you of June 20, 1932, I have received the remaining printer's proof of your N. S. Catalogue No. 28 and from it wish to order the following numbers which with the previous list will have to be gone over in Montreal and compared with volumes on the shelves before you will receive the official order for such as are not already in the Library.

As I wrote you, this order comes at the time of the University long vacation so that you will not receive definite final instructions about it until some time next October. As this is too long a time to hold these items we shall just take our chances of acquiring such of the list as then are still in stock and this applies also to the tentative order enclosed in my letter of June 20th.

There are, however, a few items that I will order now and which you may at any time forward to McGill, billing them to the E. S. W. Library of Ornithology with the note that they were "ordered DIRECTLY BY DR. CASEY WOOD on June 24, 1932," all with the two exceptions noted, to be mailed to McGill, Montreal. These items, which include those already indicated in my last letter, are, less 20%—

ordered 19/8/32 OPH

No.	168,	Boucard	£ 15 0
	176,	Brabourne	4 4 0
	282,	Burton	3 10 0
	355,	d'Aubusson	16 0
In Library	590,	Harting	1 0 0
	696,	Jenyns	5 6
	720,	Klein	5 10 0
	820,	Macoun	6 0
	823,	Macoun	10 6

[Note: Please mail these last two (Macoun) items to my address in Pasadena.]

a/c pd. 4/8/32.

1022,	Parrots	1 10 0
1035,	Pennant	4 10 0

Ordered ✓ OPH

703 - Jesperson. Ornithological observations in the North Atlantic Ocean.

60

ORDER DEPT
RECEIVED
JUN 28 1922
ANSWERED

Messrs. Wheldon and Wesley,
2, 3, 4, Arthur Street,
New Oxford Street,
London, W. C. 2, England.

Twenty-fourth June 1922

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all with the two exceptions noted, to be mailed to McGill.
My last letter, are, less 20 p.c. —

No. 168,	Bouvard	£ 12	0
170,	Brabourne	4 4	0
282,	Burton	3 10	0
288,	d'Aubusson	16	0
880,	Harting	1 0	0
896,	Jerdon	8	0
920,	Klein	3 10	0
880,	Macgillivray	8	0
883,	Macgillivray	10	0

[Note: Please mail these last two (Macgillivray) items to my address in Pasadena.]

1028,	Parrots	1 10	0
1028,	Pommard	4 10	0

In	No. 1085,	Ray	£1 0 0	£ 10 0
ordered ✓	1091,	Reichenow	7 6	
In	1270,	Stonham	10 15 0	

Yours sincerely,

Casey A. Wood

CW:DB
Encs.

No. 1085.	Rev.	£1 0 0
1091.	Refobenom	7 6
1270.	Stourbridge	10 15 0

Yours sincerely,

CW:DB
Encls.

— Second & final list —

WHELDON AND WESLEY, JUNE, 1932, CATALOGUE NEW SERIES NO. 28

Desiderata for E. S. W. Library of Ornithology, McGill University, second list, to be ordered if not in any of the libraries. Underscored items are ordered forthwith.

Ordered Ophy ✓ No. ✓538 - Granvik, Contributions to the knowledge of the East African ornithology £ 10 0

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2nd ser. in Bl. Lib. ✓549 - --- Notes on cage birds. 5 0

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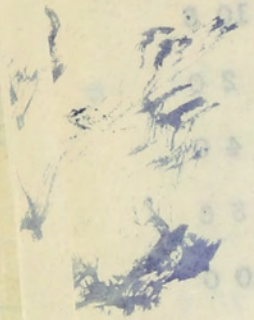

[**ANONYMOUS.** (**Titles in alphabetical sequence.**) (contd.)]

1829. Khayl-nāma. (Persian manuscript.)

A detailed treatise on the selection of a good horse, its upkeep and hygiene, and on treatment of its diseases. The book is divided into two *kitābs*, or books, the first subdivided into 40, and the second into 60 short *bābs* (chapters). Unfortunately, the preface is missing in this copy, and there is no indication of the author or of the date of composition. It seems that there are no other copies of this book in the libraries with which I am acquainted. It is a good copy, in a fairly good state of preservation. It has been transcribed by the same scribe as the Hazin, 1829—in Rabi' I 1245 A.H., or Sept. 1829. (W. I.)

ca. **1580.** Kitabu'l-haywan. A zoological dictionary. Arabic manuscript.

The copy is incomplete both at beginning and end, so that the exact date of its original composition and the name of the author cannot be determined. As it is distinctly different from other works of the kind written in the same period it is probably unknown to cataloguers and, consequently, very rare. (W. I.)

n.d. Lebensbilder aus des Tierwelt Europas. Bd. II. Saugethiere; Vögel Band II and Bd. IV, Antilopen, etc.

n.d. [List of British Birds.] Large folio sheet, printed on one side. Indigenous and visitant species with both specific and systematic names. Loosely inserted in Seebohm's *History of British Birds*, 1883. Attributed to Bowdler Sharpe.

n.d. London Zoological Society. List of abbreviations with titles of journals containing papers dealing with matters of zoological importance. *pp. 42.* *London.*

A valuable list for the use of libraries on zoology.

n.d. Marvels of the Universe. (Introd. by Lord Avebury.) *2 vols. 4to. 36 pl.*

1758. Mémoire instructif sur la manière de rassembler, de préparer . . . les divers curiosités d'histoire naturelle. *8vo. pp. 235. 24 folding cop. pl. (6 birds; 7 fishes and sea invertebrate animals).* Published by J. M. Bruyset. *Lyons.*

Well-illustrated manual on the preparation of birds, fishes, and other sea animals for preservation in natural history collections.

[**1847**]. Migratory birds; or, such as visit Britain at different seasons of the year. A guide to their favourite places of resort, with their natural history, songs, and the benefits which their migrations confer on mankind. *16mo. pp. iv+5–64. 1 fig. (vignette.) T. of c.* *London.*

This little work comprises short accounts of the birds that arrive in the British Isles during March, April, and May, pp. 5–50; the autumn and winter birds of passage (September), pp. 50–6, and winter birds of passage, comprising waders and swimmers, pp. 56–64.

1720? Miscelania curiosa de avibus. Of birds. *sq. 8vo. pp. 122. 95 pl.* MSS. in English and Latin with original drawings of English and American birds.

This curious manuscript describes, with the help of Ray's *Synopsis* and other contemporary sources (quoted by the unknown author and artist) over 200 species, with colored drawings of 98. It is in the E.S.W. Library and may be of interest to research scholars. Internal evidence indicates its production in the beginning of the eighteenth century.

[**1822?**]. [Natural history. A miscellaneous book of natural history in manuscript, containing descriptions of birds and method of preserving their skins; of preserving shells, plants, minerals, and insects, also historical notices on falconry and falcons, etc.] *cr. folio. pp. 233. 3 figs. index.*

1793. The natural history of birds, compiled from the best authorities, and illustrated by a great variety of copper plates, comprising near one hundred figures, Accurately drawn from Nature, and beautifully engraved. *12mo. pp. xii+204. 26 pl.* *London.*

The plates in this small and popular volume are exceptionally well done. There are several editions of this work in the libraries of McGill, one at least (1791) in 3 vols. with col. pl.

1815. (The) natural history of birds, from the works of the best authors, antient and modern. Embellished with numerous plates, accurately coloured from nature. *2 vols. 8vo.* Vol. I, *pp. xxxv+(1)+586. 69 pl. (col.).* Vol. II, *pp. xv+(1)+700. 83 pl. (col.). T. of c.* *Bungay.*

A series of descriptions of birds from all countries, with notes on habits, etc., under Vernacular names, and arranged by so-called tribes. The plates are hand-coloured, although hardly accurately. There is a London edition of the same year, with a slightly different title.

1840. Natural history of birds; their architecture, habits, and faculties, with numerous engravings. *12mo. pp. [8]+308. T. of c.* Cuts in text. (Harper's Family library. 1841–8. vol. 98.) *New York.*

This juvenile manual is an amended American edition of a similar work originally published by the British Society for the Diffusion of Useful Knowledge. It is signed H. and B. Another (identical) edition was published in 1845.

[*ca.* **1852**]. (The) natural history of land birds. *12mo. pp. 62. pl.* *Cincinnati.*

This juvenile book is illustrated with cuts evidently borrowed from Nuttall's *Manual*.

1821. Natural History of remarkable Birds, etc.

1754. (A) natural history of singing birds bred in Britain. *See* ALBIN, E.

The E.S.W. Library has another edition (several were published) dated, Edin. 1776—all attributed to E. Albin.

1740. Nature Displayed, being Discourses on - - - Fish, Birds, plants, etc. Edited (translated) by S. Humphreys. *3 vols.*

This title is attributed to Noël Antoine Pluche (q.v.).

n.d. (Die) Naturgeschichte in getreuen Abbildungen und mit ausführlicher Beschreibung derselben. Vögel. *4to. 183 pl. (col. including engr. title-page).* *Halberstadt.*

The second volume only of a work on natural history, consisting of 183 colored plates of the birds of the world. There is no clue to the date nor to the author. The plates are hand-colored. At Halberstadt where it was published there is a celebrated ornithological museum.

1740. Naturgeschichte in Mahlerey Bestehend. *2 vols. ob. 8vo.* Many original oil-paintings of animals and birds with German descriptions.

1866. (Die) Nester und Eier der Vögel; mit 304 grösstentheils nach der Natur entworfenen und genau kolorirten Abbildungen. Neue Ausgabe. *sq. folio. pp. (2)+24. 8 pl. (col.). 26 figs.* *Stuttgart.*

Colored figures of birds' eggs with some nests. The introduction contains an account of the gross features of the development of the chick in the egg.

ca. **1780.** New British Bird Fancier, etc. *8vo.*

1745. (A) new general history of birds; including the methods of breeding, managing, and teaching of song birds. *2 vols. 18mo.* *London.*

'Illustrated with about 400 figures, copied from the originals.'

Vol. I, *pp. i–xii, 1 l., pp. 13–340, 171 woodcuts*

[**ANONYMOUS.** (**Titles in alphabetical sequence.**) (contd.)]

(*portrs. of birds*) *and numerous decorations.* Vol. II, *pp. i–viii, 3–314, 3 ll.* (*index,* begun on p. 314), *182 woodcuts* (*portrs. of birds*) *and numerous decorations.*

There are several editions and variant printings of this curious work on the habits and other characteristics of many birds. The Ayer-Zimmer *Catalogue* describes a Birmingham edition published in 1743.

1791–2. A new system of the natural history of quadrupeds, birds, fishes and insects. *3 vols. 8vo.* Vol. I, *pp. xviii+(2)+586+(1). 46 pl. T. of c.* Vol. II, *pp. vii+(1)+568. 56 pl. T. of c.* Vol. III, *pp. viii+577+(2). 44 pl. T. of c. Edinburgh.*

A work largely compiled from the writings of others. The portion relating to birds will be found in vol. II, pp. 1–568, with 56 plates.

1801. Notice des principaux objets d'histoire naturelle, etc. *See* JAUME-SAINT-HILAIRE.

n.d. (Les) oiseaux, description des principales espèces des oiseaux d'Europe; dessins et gravures de Pauquet frères. *4to. pp. 32. T. of c. 8 col. pl. 18 figs. in the text. Paris.*

An attempt in a few pages to describe and depict the genera and species of the principal European birds. The work has little scientific value, although some of the colored plates are good.

1855. Ornithological synonimy; an anonymous manuscript. *4to.* [*434*] *fol.*

An old manuscript by some unknown English ornithologist dealing with the *Vulturidae, Falconidae,* and *Strigidae.*

1767–73. Ornithologia, Methodice digesta, atque Iconibus æneis ad vivum illuminatis ornata [Latine et Italice a Xavier Manetti, Laurentio Lorenzi, et Violante Vanni]; Vols. I–V. 600 coloured plates, portrait of Gerini after Zocchi, vignettes, etc. *roy. folio. Florentiæ.*

A very valuable collection of early plates from treatises by several well-known naturalists.

1743–5. Ornithologia nova; or, A new general history of birds, extracted from the best authorities in various languages both antient and modern. With Remarks and proper observations upon the different species and kinds throughout the known world, from the most curious Naturalists, Virtuosos and travellers. Containing, a description of a great number of curious and uncommon birds, found in different parts of the Universe. Illustrated with about four hundred figures, copied from the best originals. *2 vols. 16 mo.* Vol. I, *pp. xii+(2)+13–340. 257 figs.* Vol. II, *pp. (2)+viii+3–314+(6). 250 figs. index. Birmingham.*

A curious little work, describing the appearance and habits of various birds. Many of the accounts are based on travellers' tales, whilst others are from more reliable sources. The 507 woodcuts are very quaint and crude.

1780. Ornithotrophie artificièle, etc. *Paris.*

(**1840**). The Parrot-keeper's Guide. By an experienced Dealer. *pp. 48. small 8vo. 6 col. and 3 plain plates. index. London.*

1815. Recreations in natural history; or, Popular sketches of British quadrupeds: describing their nature, habits, and dispositions, and interspersed with original anecdotes; embellished with numerous engravings and wood cuts from portraits of living animals. *4to. illust. pl. pp. 16+368.* After L. Clennell. *London.*

1835. Saydiyya. Persian manuscript. *sm. 4to. 21 folios.*

A short, anonymous treatise on hunting from the religious (Shihite) viewpoint. Incidentally it furnishes a list of birds, mammals, insects, and other animals in Arabic, Persian, and Hindi. (W. I.)

1828. Sketches of Birds by Japanese Artists (unsigned) of the Old Kano School. (Arranged in European order.) Vols. II and IV.

(? **1785.**) Tibb-i-aspān. (Hindustani manuscript.)

A short versified treatise on the treatment of diseases of the horse. It is divided irregularly into a large number of short paragraphs which have each a special heading. The name of the author and the date of composition are not mentioned. Most probably the work was composed towards the end of the XVIIIth, or beginning of the XIXth century, judging from its style. A fairly good and well preserved copy. (W. I.)

ca. **1885.** Tibbu'l-ḥaywān. Arabic manuscript on veterinary Medicine and Surgery.

Useful for determining the meaning of terms one meets with in Arabic and Persian works on zoology. As there is no proper introduction, the author's name, date of composition, and formal title are not mentioned. The copy (or original) is not found in the usual catalogues, so that the treatise may be unique. There is a table of contents at the end of the book. The caligraphy is good. (W. I.)

1920. Tota Kahani; [or Indian folklore story of a parrot]. *8vo. pp. 104+1. Lahore.*

A translation into Urdu of a famous series of Persian folk-lore stories, akin to the Arabian Nights Entertainments, in which a wise old parrot gives his experience of life in and out of the jungle. There are several editions, including an old Persian MS. beautifully illustrated, of this volume.

1925. Tota Maina; [or Indian folklore tales of the parrot and the Mynah]. *8vo. pp. 168. Lahore.*

Folklore tales of the Mynah and Parrot, familiar to most North Indian and Persian peoples, with whom they were very popular. The present edition is printed in Urdu.

1765. A treatise on domestic pigeons; comprehending all the different species known in England . . . Carefully compiled from the best authors. To which is added, a most ample description of that celebrated and beautiful pigeon called the almond tumbler. *post 8vo. pp. xvi+144. front. 13 pl. 75 figs.* (*head and tail pieces*). *London.*

The *Columbarium* of Moore (1735) amplified by a practical fancier. It embraces everything necessary for the successful breeding and rearing of pigeons in general. The book is said to be extremely scarce according to a pencil note on the fly-leaf.

1864. Unterricht f. Liebhaber der Kanarienvögel. *Quedlinburg.*

[*ca.* **1700.** Uccellini; a book of Italian water-color drawings of birds.] *folio. 105 pl.*

n.d. Wild Birds at Home. *2 vols. 12mo.* First and Second Series.

1923. (Die) Zweisprach der Tiere (Dialogus creaturarum). *8vo. pp. 78. 38 woodcuts in text. T. of c. München.*

A modern edition of the well-known *Physiologus* or *Dialogus creaturarum,* that in the early middle ages formed one of the few manuscripts on birds and other animals. These fables, by an unknown author, have been frequently copied, the first printed edition being published by Peter van Leu at Houda, Holland, in 1480. The present volume is number 27 of a 550 limited printing translated from Latin into German, with the woodcuts of the early Dutch edition. There are many dialogues in which birds take part, thus illustrating their habits and establishing their identity.

1854–60. (The) zones of the earth; productions of the zones. *folio. 2 vols. pl. London.*

CONTENTS: vol. [1]. Text. [2]. Plates.

n. d. n. A. pub[d] Berlin, chez Guillaume Oehmigke le Cadet. Marchand Libraire [17--?] Nouvelle Gallerie de Figures – dedié à Son Altesse la Princesse Auguste de Prusse. Very rare. 25 col. pl. of animals. Pp. 398 MCW.

← 1794. Ornitogonia ovvero la Cova de' Canarj. Per facilitare la moltiplicazione, educanti, e mantenerli sani. Opera di J. Bailio della Congregazione. Roma. in 16-c. di pp. n. 70

n. d. Parrots and Monkeys. 800. 26 ill. pp. 209. n. p. Popular. E. S. W.

ANSLIJN, NICOLAAS [1777–1838].

1822. Systematische beschrijving der Vogelen. *pp. 596.* *Leyden.*

This is a rare treatise not listed in the *Cat. Br. Mus.* (*Nat. Hist.*), and probably a forerunner of the author's two-volume treatise on the vertebrates of Holland.

1838. Afbeeldingen van Niederlandshe dieren. *2 vols. 8vo. 316 col. pl., of which 133 are of birds.* *Leyden.*

An earlier (first ?) edition of this excellent treatise on the vertebrates of Holland was published in 1830. The plates are hand-colored.

ANTARCTIC EXPED. (BR. MUS.) ZOOLOGY. *See* NATIONAL ANTARCTIC EXPED.

ANTHONY, H. E., and **others.**

1917. Mammals of America; technical editor, H. E. Anthony . . . artists, Carl Rungius Belmore Browne, George A. King. *New York, The University society inc.*

1928. Field Book of North American Mammals. *12mo. pp. 625. 32 col. pl. 175 illust.* *N.Y.*

The author, well known as the Curator of Mammals in the American Museum of Natural History, systematically describes every mammal north of the Rio Grande, and gives an account of its habits, geographical ranges, etc.

1929. Field Book of North American Mammals, *with 32 colored plates, and 173 text illust. cr. 8vo. map.* *New York.*

Another printing of an earlier edition.

ANTHONY, R. *See* FRANCE. EXPÉDITION ANTARCTIQUE, (1906–8).

ANTHROPOLOGIE. **1890**–*date.* *Paris.*

ANTINORI, ORAZIO, MARCHESE [1811–82].

1864. Catalogo descrittivo di una collezione di uccelli nell' interno dell' Africa centrale nord dal maggio 1859 al luglio 1861. *8vo. pp. 30+117.* *Milano.*

In this important catalogue of birds found in north-central Africa several species new to science are described. The present copy is from the Godman library.

1873. Viaggio dei Signori O. Antinori, O. Beccari ed A. Issel nel mar Rosso, nel territorio dei Bogos e regioni circostanti durante gli anni 1870–71. Catalogo degli uccelli compilato per cura di O. Antinori e T. Salvadori. *4to. pp. 161. pl.* *Genova.*

ANTONIUS LE GRAND.

1673. Historia naturae, variis experimentis et ratiociniis elucidata. *pp. 38+416.* *Londonini.*

This rare treatise is in the Dean Adams Library (McGill). Not listed in the *B.M. Nat. Hist. Cat.*

ANUARIO D. ACADEMIA MEXICANA DE CIENCIAS EXACTAS, FISICAS Y NATURALES. **1895–9.** *See* ACADEMIA MEXICANA, etc.

ANZEIGEBLATT DER ORNITHOLOG. MONATSSCHRIFT DES DEUTSCHEN VEREINS ZUM SCHUTZE DER VOGELWELT. *See also* MONATSSCHRIFT DES SACHSISCH-THÜRINGISCHEN VEREINS, etc.

The E.S.W. Library has 1897–1903, 12 nos. in each. With *1901, No. 3,* the title was changed to *Anzeigen-Beilage.* Table of contents and volume indices. Many colored and other illustrations. That well conducted journal, the *Ornithologische Monatsschrift,* published several supplemental periodicals and serials. The title of the chief of these was the *Anzeigeblatt.* This was issued in 12 (monthly) numbers per volume (annum), and printed in Gothic type with separate pagination, title-wrapper, and numbering. It was of the same size and excellent quality as the *Monatsschrift,* was well illustrated both in colors and black and white, and contained many valuable contributions to science by well-known ornithologists. The Compiler has so far seen only the following *separate* issues:
1897. Nos. 1–12. *364 pp. T. of c. col. illust. List of Members.*
1898. Nos. 1–12. *376 pp. T. of c. col. illust. index.*
1899. Nos. 1–12. *380 pp. T. of c. col. illust. index.*
1900. Nos. 1–12. *496 pp. T. of c. Many col. illust.*
1901. Nos. 1–12. *434 pp. T. of c. Many col. illust. index.*
Title of No. 3 and subsequent numbers changed to *Anzeigen-Beilage.*
1902. Nos. 1–12. *536 pp. T. of c. col. illust. index.*
1903. Nos. 1–12. *506 pp. T. of c. Many colored and other illust.*

ANZEIGEN-BEILAGE.

Continuation of the Anzeigeblatt der Ornitholog. Monatsschrift des Deutschen Vereins zum Schutze der Vogelwelt (q.v.).

ANZEIGER FÜR BOTANIK UND ZOOLOGIE.

? **1896**–*date.* No 33 bears date 1929. Published as a dealer's list by Oswald Weigel, Königstr. *Leipzig.*

A useful priced catalogue of titles in all departments of natural history.

ANZEIGER F.D. GES. NATURWISSENSCHAFT.

1817–22. 1–5 (all pub.). *See* BERN.

ANZEIGER DER ORNITHOLOGISCHEN GESELLSCHAFT IN BAYERN.

Beiblatt to the Verhandlungen d. Ornithol. Gesellsch. in Bayern. (q.v.); also the Jahresbericht des Ornith. Vereins München. Nos. 1 and 2. 1919. *14 pp.* No. 3. 1920. No. 4. March 1921. No. 5. Dec. 1921. *8vo.* *München.*

Although this magazine is officially described as 'ein unregelmässig erscheinendes Beiblatt' of the 'Verhandlungen' it is issued quite independently of the latter and contains many scientific contributions (Stresemann, Hellmayr et al) apart from its office as a record of the business meetings of the Society.

APGAR, AUSTIN CRAIG [1838–1910].

1893. Pocket key of the birds of the northern United States, east of the Rocky Mountains. *sm. 8vo. pp. (4)+5–63. glossary. index.* *Trenton, N.J.*

The title sufficiently covers the description, the glossary giving the meaning of the minimum technical terms used. The present copy is an autographed presentation from the author.

1898. Birds of the United States east of the Rocky Mountains, a manual for the identification of species in hand or in the bush. *8vo. pp. 415. 70 figs. and numerous line drawings. T. of c. glossary. index.* *New York.*

A work for students and beginners, with short descriptions of the species, keys for their determination in the field, and a glossary of technical terms. The half-tone illustrations as a rule are poor, in fact unrecognizable in some cases.

APLIN, BENJAMIN D'OYLY. *See* APLIN, F. C.

APLIN, F. C.; **APLIN,** Rev. B. D'O. and **APLIN,** OLIVER V.

1882. A list of the birds of the Banbury district. *8vo. pp. 177.* *Banbury.*

Forming the first publication of the Banbury Natural History Society. The annotated list comprises some 180 species.

APLIN, OLIVER VERNON [1858–].

1882. *See* APLIN, F. C.

1889. The birds of Oxfordshire. With a map. *8vo. pp. vii+(1)+217. front. (col.). 1 map (col. fold.). addend. glossary. index.* *Oxford.*

A well annotated list of 242 species, in addition to six species the occurrence of which is considered doubtful. A topographical and historical chapter precedes the bird matter.

1898. Pygopodes. *See* BUTLER, A.G. British birds, &c. Vol. vi.

APOSTOLIDOS, NIKOLAOS CHRISTO.
1885. (In modern Greek.) Das Tierreich, Naturgesch. d. Säugetiere, Vögel, Kriechtiere, etc. (The Animal Kingdom, Natural hist. of Mammals, Birds, etc.) *4to. 90 col. pl.* *Athens.*

APPUN, C. F.
1871. Unter den Tropen, etc. *2 vols. 8vo.* (Wanting.) *Jena.*

APTERYX.
1905. A New England quarterly of natural history. Vol. 1, nos. 1–3; Jan.–July 1905 (all pub.). *3 nos. in 1 vol. 23½ cm. ix pl., 1 col. (incl. double map).* Pub. quarterly in the interests of the Roger Williams park museum of Providence, R.I. *Providence, R.I.*

This promising periodical eventually failed because of lack of support from the municipal government.

APUNTES DE HISTORIA NATURAL.
1909–10? *Buenos Aires.*

AQLU'SH-SHU'UR, by NIZAMU'D-DIN.
1914. Hindustani natural history encyclopedia. Lithograph. *pp. 490.* *Lucknow.*

AQUATIC LIFE. 1915–*date*. (Wanting.) *Philadelphia.*

AQUATIC MONTHLY AND NAUTICAL REVIEW. 1872–81. *New York.*

Devoted to the interests of all pastimes (and natural history) by field and water.

AQUILA.
A Magyar Ornithologiai Központ Folyóirata. Periodical of Ornithology. Journal pour Ornithologie. Zeitschrift für Ornithologie. Edited for the Hungarian Ornithological Central-Bureau (founded in 1893) by Herman Ottó. *4to. Pictured tinted wrappers. Quarterly.* *Budapest.*

1894–*date*.
Published in both Hungarian and German—two parallel columns to a page. Papers occasionally published in French or English. Collation of the first 28 vols. follows.

Jahrg. I. 1894. Motto: In excelso figit nidum Regina avium. Nos. 1 and 2, July; Nos. 3 and 4, Dec. *188+36 pp. col. pl. index.*

Jahrg. II. 1895. Nos. 1 and 2, April; Nos. 3 and 4, Dec. *201 pp. illust. index.*

Jahrg. III. 1896. Nos. 1–2, May; Nos. 3–4, Dec. *252 pp. two col. pl.*

Jahrg. IV. 1897. Nos. 1–3, June; No. 4, Nov. *288 pp. index. col. pl. and figs.*

Jahrg. V. 1898. Nos. 1–3, March; No. 4, Nov. *311 pp. index. col. pl. and figs.*

Jahrg. VI. 1899. Nos. 1–2, May; No. 3, Aug.; No. 4, Dec. *425 pp. index. col. pl. and figs.*

Jahrg. IX. 1902. Nos. 1–4, Aug. *272 pp. index. col. pl. and figs.* Supplement. *28 pp.*

Jahrg. X. 1903.

Jahrg. XI. 1904. Nos. 1–4, Dec. *404 pp. index. Many col. pl. and figs.* Motto omitted.

Jahrg. XII. 1905. Nos. 1–4, Dec. *387 pp. index. tables and charts.*

Jahrg. XIII. 1906. Nos. 1–4, Dec. *274 pp. index. col. pl. and figs.*

Jahrg. XIV. 1907. Nos. 1–4, Dec. *380 pp. index. plates and figs.*

Jahrg. XV. 1908. Nos. 1–4, Dec. *360 pp. index. plates and figs.*

Jahrg. XVI. 1909. Nos. 1–4, Dec. *359 pp. index. plates and figs.*

Jahrg. XVII. 1910. Nos. 1–4, Dec. *305 pp. index. col. pl. and figs.*

Jahrg. XVIII. 1911. Nos. 1–4, Dec. *447 pp. index. col. pl. and figs.*

Jahrg. XIX. 1912. Nos. 1–4, Dec. *504 pp. index. col. pl. and figs.*

Jahrg. XX. 1913. Nos. 1–4, Dec. *585 pp. index. col. pl. and figs.*

Jahrg. XXI. 1914. Nos. 1–4, Dec. *299 pp. index. plates and figs.* Death of the Editor and Founder, Ottó Herman.

Jahrg. XXII. 1915. Issued as a single vol. German text follows the Hungarian. *437 pp. 1 pl. and 27 figs.* Editor: Titus Csörgey. Full index pub. in 1918.

Jahrg. XXIII. 1916. *599 pp. index. 2 col. pl. and 9 figs. in the text.* Editor: Stefan Chernel.

Jahrg. XXIV. 1917. *321 pp. index. 2 pl. and 21 figs. in text.* Full index to Jahrg. 1915, pub. as supplement. *16 pp.*

Jahrg. XXV. 1918. *236 pp. index. 1 pl. and 23 figs. in text.* Two supplements. *76+69 pp.*

Jahrg. XXVI. 1919. *164 pp. index. portrait.*

Jahrg. XXVII. 1920. [Issued Mar. 15, 1921.] *304 pp. plates and 1 text illust.*

Jahrg. (Tom.) XXVIII. 1921. *245 pp. index. figs. in text.* And continuation.

This well-edited magazine, belonging to the highest class of scientific journalism, survived the hard struggle of the World War and continues to appear, although in somewhat belated fashion. The volumes are well illustrated and the contributions are chiefly from the pens of Hungarian writers, although numerous papers have been written by others. Besides the editors were Blasius, C. Floericke, Frivaldsky, Fürbringer, Kleinschmidt, Schenk, Tschusi zu Schmidhofen, and numerous others of like rank.

ARBEITEN DER BIOL. STATION ZU HOSSINO, etc.
1924–6. *3 vols.* Text Russian and German.

ARBEITEN A. D. ZOOLOG. INSTITUT ZU GRAZ.
1886–1911. Vols. 1–9 (all pub.). *München.*

ARBEITEN AUS DEM ZOOLOGISCHEN INSTITUT DER UNIVERSITÄT WIEN UND DER ZOOLOGISCHEN STATION IN TRIEST. 1878–1915. *Vienna.*

ARBEITEN ZOOL. INST. WÜRZBURG.
See WÜRZBURG. ZOOLOGISCH-ZOOTOMISCHES INSTITUT.

ARBEITEN AUS DEM ZOOLOGISCH. U. ZOOTOMISCHEN KABINET D. UNIV. ST. PETERSBURG.
1890–1911. Nos. 2–21. Mit vielen Taf. *St. Petersburg.*

→ Archiv fur Anatomie u. Entwicklungsgeschichte. 1877-1919.

→ Archiv fur Experimentelle Zellforschung Besonders Gewebezuchtung. v. 1-

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ARBOLEYA, J. G. DE.
1852. Manual de la Isla de Cuba. *1 vol. 18mo. Havana.*

ARCANA: or, **THE MUSEUM OF NATURAL HISTORY.** *London.*
1810–11. *See* PERRY, GEORGE.

ARCANA NATURAE. 1859. (Wanting.) *Paris.*

ARCHIV F. BIONTOLOGIE. (**Gesellschaft f. naturf. Freunde zu Berlin.**) *Berlin.*
1906–*date* (suspended 1909–12).

ARCHIV FÜR ENTWICKELUNGSMECHANIK DER ORGANISMEN. *Leipzig.*
1894–1923. Merged into Archiv für mikros. anat. und entwick., etc. (Wanting.)

ARCHIV FÜR GEFLÜGELKUNDE. MONATSSCHR. F. FÖRDERUNG, etc.
1926–*date*. Edited by Dr. Otto Bartsch, Berlin-Niederschönhausen, Kaiser Wilhelmstr. 66, Germany.

A semi-popular periodical devoted mainly to barnyard fowls.

ARCHIV F. D. GESCHICHTE D. NATURWISSENSCHAFTEN U. DER TECHNIK.
1909–18. Vols. 1–8.

ARCHIV FÜR HYDROBIOLOGIE UND PLANKTONKUNDE. *Berlin, Stuttgart.*
1893–1905. As Forschungs. aus d. Biologisch. Station zu Plön.

1905–*date*. New series. (Wanting.)

ARCHIV FÖR MATHEMATIK OG NATURVIDENSKAB. 1876–*date*. *Oslo.*

ARCHIV FÜR MIKROSKOPISCHE ANATOMIE UND ENTWICKLUNGSMECHANIK. *Bonn.*
1865–*date*. Continuation of Archiv für Entwick. der Organismen.

ARCHIV FÜR NATURGESCHICHTE. *Berlin.*
1835–1911. Continued in two sections.

1912–*date*. Abteilung A: Original Arbeiten.

1912–*date*. Abteilung B: Jahresberichte.

1835–*date*. Herausgegeben von . . . A. F. A. Wiegmann, (and afterwards) W. F. Erichson, F. H. Troschel, E. von Martens, and F. Hilgendorf.

1860. Register zu den ersten fünfundzwanzig Jahrgängen.

1895. Register zu dem 26. bis 60. Jahrgang. *8vo. Berlin.*

One of the longest established and most important of the periodicals devoted to natural history. Invaluable to students of vertebrate zoology.

ARCHIV DER NATURGESCHICHTE.
1827–30. (Wanting.) *Naumburg.*

ARCHIV FÜR NATUR, KUNST, WISSENSCHAFT UND LEBEN.
1841–8. Bd. 9–16. Jrg. *Braunschweig.*

ARCHIV F. DIE NATURKUNDE EESTIS. *Tartu.*
1854–1905? as Archiv für die Naturkunde Liv-, Ehst- und Kurlands; **1920–3** Archiv für die Naturkunde des Ostbaltikums. Suspended **1906–19.**

1854. First series. Geologica, chemica et physica. Vols. 1–9. Pt. 5? as Mineralogische Wissenschaften, nebst Chemie, Physik, etc.

1859. Second series. Biologische naturkunde.

ARCHIV FÜR DIE NATURKUNDE LIV-, EEST- UND KURLANDS. *See* ARCHIV FÜR DIE NATURKUNDE EESTIS.

ARCHIV FÜR DIE NATURKUNDE DES OSTBALTIKUMS. *See* ARCHIV FÜR DIE NATURKUNDE EESTIS.

ARCHIV FÜR NATURWISSENSCHAFT. *See* KÖNIGSBERGER ARCHIV FÜR NATURWISSENSCHAFTEN UND MATHEMATIK. *Königsberg.*

ARCHIV FÜR DIE NATURWISSENSCHAFTLICHE LANDESDURCHFORSCHUNG VON BÖHMEN. 1869–*date*. *Prague.*

ARCHIV FUER DIE ORNITHOLOGIE. *See* NAUMANNIA.

ARCHIV FÜR DIE SYSTEMATISCHE NATURGESCHICHTE. *Leipzig.*
1804. Continued as Beiträge zur Naturkunde.

ARCHIV D. VEREINS D. FREUNDE D. NATURGESCH.
1847–1922. Jrg. 1–75. Mit Inhaltsverz. zu 21–50 u. alphab. Register zu 11–50. Nebst 2 Katl. d. Vereinsbibliothek von 1887 u. 1896. Gustrow. *Mecklenburg.*

ARCHIV F. WISSENSCHAFTL. U. PKT. THIERHEILKUNDE.
1875–1901. Vols. 1–27. (Continues the earlier Magazin f. d. ges. Thierheilk.) *Berlin.*

ARCHIV FÜR ZOOLOGIE UND ZOOTOMIE. *Berlin, Brunswick.*
1800–6. Continued as Neues Archiv für Zoologie und Zootomie.

ARCHIVES DE BIOLOGIE. 1880–*date*. *Paris, Ghent, Liége.*

A very important periodical, especially for reference.

ARCHIVES DE LA COMMISSION SCIENTIFIQUE DU MEXIQUE. *Paris.*
1865–7. (Wanting.)

ARCHIVES OF COMPARATIVE MEDICINE AND SURGERY. *See* JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

ARCHIVES ITALIENNES DE BIOLOGIE.
1882–*date*. ~~(Wanting.)~~ *Pisa, Rome.*

ARCHIVES DU MUSÉUM D'HISTOIRE NATURELLE DE LYON. *See* MUSÉUM DES SCIENCES NATURELLES DE LYON.

ARCHIVES DU MUSÉUM D'HISTOIRE NATURELLE DE PARIS.
1865–74. 1st Ser. 1–10.

1875–88. 2nd Ser. 1–10.

1889–98. 3rd Ser. 1–10.

1899–1908. 4th Ser. 1–10.

1909. 5th Ser. Vol. 1 and continuation.

ARCHIVES NÉERLANDAISES DE PHYSIOLOGIE DE L'HOMME ET DES ANIMAUX. **1916**–*date*. *The Hague.*

ARCHIVES NÉERLANDAISES DES SCIENCES EXACTES ET NATURELLES. *The Hague.*

1866–97. Series 1.

1897–1911. Series 2.

1911–*date*. Series 3 *a*. (Sciences Naturelles.)

ARCHIVES PORTUGAISES DES SCIENCES BIOLOGIQUES. **1921**–*date*. (Wanting.) *Lisbon.*

ARCHIVES OF SCIENCE AND TRANSACTIONS OF THE ORLEANS COUNTY SOCIETY OF NATURAL SCIENCES. **1870–4.** *Newport, Vt.*

ARCHIVES SLAVES DE BIOLOGIE. **1886–7.** (Wanting.) *Paris.*

ARCHIVES DE ZOOLOGIE EXPÉRIMENTALE ET GÉNÉRALE.
1872–*date*. Publiées sous la direction de H. de Lacaze-Duthiers. Tom. I–X.

1883–92. Ser. II, Tom. I–X (= XI–XX).

1893–1902. Ser. III, Tom. I–X (= XXI–XXX). Publiées sous la direction de H. de Lacaze-Duthiers (et G. Pruvot and afterwards E. G. Racovitza).

1903–9. Ser. IV, Tom. I–X (= XXXI–XL). Fondées par H. de Lacaze-Duthiers. Publiées par G. Pruvot et E. G. Racovitza.

1909–13. Ser. V, Tom. I–X (= XLI–L).

1912–*date*. Tom. LI–. *8vo.* *Paris.*

ARCHIVIO DI BIOLOGICA. **1894**–*date*. (Wanting.) *Florence.*

ARCHIVIO DI SCIENZE BIOLOGICHE. **1919**–*date*. *Naples.*

ARCHIVIO PER LA ZOOLOGIA, L'ANATOMIA E LA FISIOLOGIA. *Genoa, Modena, Bologna.*

1861–6. Series 1.

1869–70. Series 2 (all pub.).

ARCHIVIO ZOOLOGICO. (**Unione Zoologica Italiana.**) *Naples.*
1902–*date*. Suspended 1917–20.

ARCHIVOS DE BIOLOGIA. **1916**–*date*. *São Paulo, Brazil.*

ARCHIVOS DE VETERINARIA Y ZOOTECHNIA. **1921–2?** (Wanting.) *Montevideo.*

ARCHIVUM BALATONICUM. (**Mus. Nation. Hungaricum.**) **1926**–*date*. *Budapest.*

ARCHIVUM ZOOLOGICUM.
1909–10. Redactionis curam gerentibus Dr. J. de Madarász et E. Csiki. Vol. I. *Budapest.*

ARCTIC WORLD, THE, etc. *See* ANONYMOUS, 1876.

ARDEA.
Tijdschrift der Nederlandsche Ornithologische Vereeniging onder redactie van: Dr. L. F. de Beaufort, A. A. Van Pelt Lechner en Dr. E. D. Van Oort. *8vo.* Plates and cuts in the text. Colored wrappers, with figure of Ardea.

1912–*date*. Jaargang I–. Quarterly. *8vo.* *Leiden, Holland.*

The Journal is the continuation of the *Verslagen en Mededeelingen Nederlandsche Ornithologische Vereeniging.*

A detailed catalogue of the issues to 1922 is as follows:

Jaargang I. 1912. Afl. 1, 2, and 3–4. Apr.–Dec. *137 pp. index. illust.* Double part 3/4.

Jaargang II. 1913. Afl. 1–4. Mar., June, Sept., Dec. *173 pp. index. illust.*

Jaargang III. 1914. Afl. 1–4. Mar., June, Oct., Dec. *149 pp. index. illust.*

Jaargang IV. 1915. Afl. 1–4. Mar., June, Sept., Dec. *146 pp. index. illust.*

Jaargang V. 1916. Afl. 1–4. Apr., Aug., Dec. *118 pp. index. illust.* Double part 3/4. Dec.

Jaargang VII. 1918. Afl. 1–4. Apr., Aug., Dec. *184 pp. index. illust.* Double part 1/2.

Jaargang VIII. 1919. Afl. 1–4. Aug.; Afl. 2, Nov. *132 pp. illust.* Pub. by A. B. Wigman, *Wageningen, Holland.*

Jaargang IX. 1920. Afl. 1 May and 2 Sept. *60 pp. index. illust.*

Jaargang X. 1921. Afl. 1–3. *193 pp. index illust.* Pub. by E. J. Brill, *Leiden.*

Jaargang XI. 1922. Afl. 1. *96 pp.*

On the list of contributors to the *Verslagen* and to *Ardea* may be mentioned F. E. Blaauw, Dr. A. E. H. Swaen, Dr. E. D. Van Oort, F. Willemse *et al*, who furnish a number of valuable observations (occasionally in French and German) on both Dutch and Batavian species.

ARENBERG, E., *Prince* D'.
1911–12. Les oiseaux nuisibles de France et les modes de chasse ou de piégeage propres à leur destruction suivi de quelques considérations sur les buses et le faucon cresserelle. *2 vols. 12mo.* Vol. I. 1911. *pp. 109+1. 22 col. pl. T. of c.* Vol. II. 1912. *pp. 156. 27 col. pl. T. of c.*

An essay on French economic ornithology in which bird-hunting and its methods are fully discussed.

1922. Les passereaux, les pigeons, les échassiers et les palmipèdes nuisibles de France, et les modes de chasse et de piégeage propres à leur destruction. 27 Planches coloriées. *12mo. pp. 156. 27 pl. (col.). T. of c.* *Paris.*

A crudely illustrated booklet on birds alleged to be injurious in France.

Arcos, S. 1890. Catalogue illustré par Arcos, Balze, Walther, Vallet, etc. suivi d'une conference de M. Pierre-Amédée Pichot sur "La Fauconnerie d'autrefois et la Fauconnerie d'aujourd'hui".

Aristotle. 1510. Paraphrases totius Philosophiae naturalis. folio 270 ff. Paris. bound with Alcyonius

" 1521. De Generatione — et opere de animalibus. Trans. from Greek by Petrus ~~Alcyonius~~

Venetiis. folio. 160 ff. Bd. in contemp. pigskin & remains of metal clasps. T+W 90

ARÉVALO Y BACA, José [*d.* 1890].

1887. Aves de España. *sm. 4to. 29 cm. pp.* [*iii*]–*vi*, [*7*]–*471.* (*Half-title:* Memorias de la Real academia de ciencias exactas, físicas y naturales. tomo XI). *Madrid.*

A monograph on the birds of Spain, with their vulgar and systematic names, food supply, distribution, habits, and other characters. The work, excellent as it is, lacks illustration. The present copy, in the original wrappers, is from the author's library.

ARGENSOLA, Bartolomé Leonardo d' [1566–1631].

1708. The discovery and conquest of the Molucco and Philippine Islands; containing their history, ancient and modern, natural and political . . . Written in Spanish by Bartholomew Leonardo de Argensola . . . Now translated into English: And illustrated with a map and several cuts. *pp.* (*4*)+*260*+(*8*). *1 pl. index.* *London.*

ARGENT, J. A.

1839. A Nomenclature of British Birds, etc. (Labels for collections.) *1 vol. 8vo.* *London.*

A useful collection of tags for reference.

ARGENTINE REPUBLIC. Comisión científica de la expedición al Río Negro, 1879.

1881–2. Informe oficial de la Comisión científica agregada al Estado mayor general de la expedición al Río Negro (Patagonia) realizada en los meses de abril, mayo y junio de 1879, bajo las órdenes del general D. Julio A. Roca (con 16 láminas). *3 pts. folio. 33½×25½ cm. pp. 24+530. illust. plates (partly col.).* *Buenos Aires.*

Contents: entrega I. Zoología. I. Observaciones generales sobre la fauna del territorio conquistado, por Adolfo Doering. II. Enumeración sistemática de las especies observadas durante la expedición: Vertebrados, por A. Doering. Moluscos, por A. Doering. Insectos, por Cárlos Berg. Arácnidos, por E. L. Holmberg.—entrega II. Botánica, por P. G. Lorentz y G. Niederlein.—entrega III. Geología, por A. Doering.

ARISTOTLE [384–322 B.C.].

Early 14th century. German manuscript. Translacio tractatus primi libri quem composuit Aristoteles in cognitione naturarum animalium.

A fragment of the translation of the *Historia animalium* from Arabic and Latin by Michael Scott. [O.]

1476. Libri de Animalibus. Hain—C. 1699. Proctor 4312. [O.] *Venice.*

1493. Prepositiones ex omnibus Aristotelis libris philosophie, moralis, naturalis & prime nec nō dialectice, rhetorice & poeticae, diligētissime excerpte: & ad certa rerū capita pulcherimo ordine per tabellam additam redacte [by Theophilus de Ferrarus, ed. by Benedictus Soncinas]. *folio. pp.* [*56*]+*287.* *Venetiis.*

1495–8. Opera; Graece, etc. Aldus Manutius. *folio. 5 vols.* *'ΑΡΙΣΤΟΤ. ΠΕΡΙ ΖΩΩΝ 'ΙΣΤΟΡΙΑ.* [O.] *Venice.*

The second volume of this rare (and famous) Greek edition containing the History of Animals.

1498. De natura animalium, de partibus animalium, de generatione animalium (lat.), interprete Th. Gaza. Barth de Zanis, *Venetiis.*

1513. Habentur hoc volumine haec Theod. Gaza interprete. Aristotelis de natura animalium, de partibus et generatione animalium. Theophrasti de historia plantarum, etc. Alexandri Aphrodisiensis problemata, etc., latine. Aldus. *folio.* *Venetiis.*

The celebrated Aldine print.

1533. De Historia animalium. Simon Colinaeus. *folio.* *Parisiis.*

1783. Histoire des animaux d'Aristote, avec la traduction françoise, par M. Camus. *2 vols. Paris.*

Vol. 2 has title: Notes sur l'Histoire des animaux d'Aristote, par M. Camus . . .
Greek and French on opposite pages.
'Notice des mss. & des éditions de l'Histoire des animaux, soit en grec soit en latin, dont on a fait usage pour cette édition': vol. 1, *pp.* [*xli*]–*lvi.*
'Table des auteurs qui ont été consultés pour la rédaction des notes': vol. 2, *pp.* [*xliv*]–*xlviij.*

1811. Aristotelis de animalibus historiae lib. X Graece et Latine. Textum recensuit, J. C. Scaligeri versionem recognovit, commentarium indicesque adjecit J. G. Schneider. *4 vols. 8vo.* *Lipsiae.*

1816. Naturgeschichte der Thiere. Übers. v. F. Strack. *Frankfurt-a-M.*

1831–70. Aristoteles Graece ex recensione Immanuelis Bekkeri. Ed. Academia Regia Borussica. Vols. 1, 2, & 5. [O.] *Berol.*

1831. Historia Animalium. *Lipsiae.*

1853. Vier Bücher ueber die Theile der Thiere; Griechisch und Deutsch und mit sacherklärenden Anmerkungen hrsg. von A[lexander] von Frantzius. *pp. 12+322.*

1857. Zoologisch-kritische Bemerkungen zu Aristoteles Thiergeschichte. *4to. pp. 2+27.* *See* Sonnenburg, Ludwig. *Bonn.*

1862. Aristotle's History of animals. In ten books. Trans. by Richard Cresswell. H. G. Bohn. *pp. ix+(1)+326. append. index.* *London.*

This excellent translation forms vol. 7 of *Bohn's Classical Library.*

1863. Die Thierarten des Aristoteles von den Klassen der Säugethiere, Vögel, Reptilien, etc. *8vo. pp. 242.* (Wanting.) *Stockholm.*

This is an admirable translation from the Swedish by C. J. Sundevall. It gives a clear description of the zoology of the illustrious, ancient naturalist.

1868. Aristotelis de partibus animalium libri quatuor ex recognitione Bernhardi Langkavel. *sm. 8vo. pp. lxviii+261. index.* *Leipzig.*

The Greek text of Aristotle's 'animals' with (Latin) notes by the Rev. Bernhard Langkavel of Berlin.

1868. Thierkunde. Kritisch-berichtigter Text, mit deutscher Übersetzung, sachlicher und sprachlicher Erklärung u. vollständigem Index von H. Aubert u. Fr. Wimmer. *2 vols. pp. 1052. 7 pl.* *Leipzig.*

1882. Aristotle on the Parts of Animals. Tr. . . . by W. Ogle. *8vo.* [O.] *London.*

1883. Histoire des animaux traduite en Français . . . par J. Barthélemy-Saint-Hilaire. *3 vols. 8vo.* Part of his *Œuvres d'Aristote.* [O.] *Paris.*

[**ARISTOTLE** [384–322 B.C.] (contd.)]

1887. Traité de la Génération des Animaux . . . traduit par J. Barthélemy-Saint-Hilaire. *2 vols. Paris.*

1908. The works. Tr. into English—J. A. Smith and W. Ross. *11 vols. 8vo.* Vol. V is devoted to animals. [O.] *Oxford.*

1911. De partibus animalium. Translated by William Ogle. *8vo. pp. 8+639[a]–697[b]. index. Oxford.*

The title *supra* is a second and revised reprint of a section of the translator's edition of Aristotle's works. It gives a very interesting account of the anatomy and physiology of both 'sanguineous' and 'bloodless' animals.
To the Compiler a specially important section is that devoted to the special senses and to the anatomy of the apparatus concerned in them.

1913. Aristotle as a biologist. *See* THOMPSON, D'ARCY W.

It may be noted that several titles in the Osler Library not listed here contain references to the animals of Aristotle.

ARK. (**Society for Prevention of Cruelty to Animals.**) **1875.** (Wanting.) *Boston.*

ARKIV FÖR ZOOLOGI. K. SVENSKA VETENSKAPS-AKADEMIEN. 1903–*date. Stockholm.*

ARLDT, THEODOR [1878–].

[*c.* **1921**]. Tiere der Vorwelt; Bilder aus der Saurierzeit. *8vo. pp. 144. illust.* (Deutsche naturwissenschaftliche Gesellschaft.) *Leipzig.*

ARMANDI, PIERRE DAMIEN [1778–1855].

1843. Histoire Militaire des Éléphants. *8vo. pp. xvi, 570. Paris.*

ARMAS, JUAN IGNACIO DE.

1888. La Zoología de Colón y de los primeros Exploradores de América. *8vo. Habana.*

ARNAULT DE NOBLEVILLE, LOUIS DANIEL [1701–]. *See* NOBLEVILLE, ARNAULT DE.

ARNDT, WALTER.

1928–?. Die Rohstoffe des Tierreichs. *8vo. Berlin.*

This is the major heading of a series of important monographs on 'raw materials' in general zoology.

ARNGRIMSON, FRIMANN B. *See* HAGERUP, A. T., 1891.

ARNOLD, EDWARD CARLETON.

1907. A bird collector's medley. *pp. 8+144. front. (col.). 19 pl. (11 col.). 20 figs. T. of c. London.*

1924. British waders, illustrated in water-colour with descriptive notes. *4to. pp. vii+(1)+102. 51 pl. (col.). T. of c. Cambridge.*

ARNOLD, EDWIN LESTER LINDEN.

1887. Bird life in England. *8vo. pp. x+325. T. of c. London.*

An interesting account of many of the most familiar English birds, as well as a review of the game laws abroad, pp. 273–325. The above was a presentation copy from the author to Howard Saunders.

ARNOLD, FRIEDRICH.

1897. Die Vögel Europas, ihre Naturgeschichte und Lebensweise in Freiheit und Gefangenschaft. *sm. 4to. pp. lxxx+458. 48 col. pl. 76 text figs. T. of c. index. Stuttgart.*

A well-known, popular work, giving a full description of the plumage, habits, and other characters of European birds. The colored figures, though small, are of decided value in identifying species. They have been extensively used to illustrate other publications.

ARQUIVOS INDO-PORTUGUÊSES DE MEDICINA E HISTORIA NATURAL.

1921–*date.* (Wanting.) *Nova-Goa.*

ARRIGONI DEGLI ODDI, ETTORE, *Conte* [1869–].

1899. Materiali per una Fauna ornitologica Veronese. *8vo. Padova.*

1902. Atlante ornitologico. Uccelli Europei con notizie d'indole generale e particolare. *1 vol. 4to. T. of c. index. front. 2 parts. Milano.*

Part I. *pp. xix+165. Bibliograph, pp. 132–165. index.* Part II. *pp. xxv+566. 50 col. pl. 210 figs. in text. index.*

An excellent and comprehensive description of European birds, well illustrated. The chromolithographs are nearly all borrowed from Arnold's *Vögel Europas.* Italian vernacular names of species accompany the systematic titles.

1904. Manuale di ornitologia italiana; elenco descrittivo degli uccelli stazionari o di passaggio finora osservati in Italia. *12mo. 15½ cm. pp. 163, viii, 907, [1]. Numerous illust. plates. map. Three indexes.* (Manuali Hoepli.) *Milano.*

An excellent handbook and descriptive review of all Italian birds.

1910. Notizie sopra un individuo albino di Mestolone o Spatula Clypeata (Linn.). *8vo. 8 pp. illust. Firenze.*

Description and portrait of a Shoveller Duck affected with complete albinism, shot near Padua, March 14, 1910.

1929. Ornitologia Italiana. *4to. pp. 1046. 36 col. pl. 586 figs. in text. index. bibliog. pp. 29–151.*

This is the most recent and most complete treatise in Italian on the birds of the world, by an ornithologist who has already published a number of systematic and popular works on his favorite subject.

[**L'**]**ART ANCIEN, S.A. Pelikanstr. 8, Zürich I. Switzerland.**

(**1925–9**). Bulletins XIII–XVI. Early Books on Medicine, Natural History, and Alchemy (printed 1468 to 1800 A.D.). *722 pp. 106 illust. Index.*

Although this volume is primarily a dealer's catalogue it forms a useful, illustrated, annotated, and alphabetically arranged work of reference for students of early treatises on subjects relating to the sciences mentioned. Of the 2,000 titles thus described the majority were published in the 15th and 16th centuries.

ARTAUD, SOULANGE. *See* BLUMENBACH, J. F., 1803.

ARTEDI, PETER [1705–35]. *See* SEBA, ALBERTUS, 1734–65.

1738. Petri Artedi . . . Ichthyologia sive opera omnia de piscibus, scilicet: Bibliotheca ichthyologica. Philosophia ichthyologica. Genera piscium. Synonymia specierum. Descriptiones specierum. Omnia in hoc genere perfectiora, quam antea ulla. Posthuma vindicavit, recognovit, coaptavit & edidit Carolus Linnæus . . . *5 pt. in 1 vol. 20½ cm.* Each part has special t.-p. 'Vita Petri Artedi descripta a Carolo Linnæo': *pp. [vii–xvii]. Lugduni Batavorum.*

A well-known work on ichthyology by a famous pupil of Linnaeus.

→ also a Mat. per Fauna Padovana. 1894. pp. 68. Offprint
→ also mat. p. ana Bib. ornith Ital., 1903 pp. 819 titles.

← Armstrong, J. S. 1932. Hand-list to the birds of Samoa. London.

ARTEDUS, PETRUS. *See* ARTEDI, PETER and LINNAEUS, CAROLUS, 1738.

ARTHUR, C. P.

n.d. Budgerigars and cockateels; how to keep, feed and breed them; with some additional notes by W. T. Page and W. Laskey. *8vo. pp. 34. cuts in text.* *London.*

A dealer's pamphlet, but containing useful information for the amateur.

**** and **FINN,** FRANK.

n.d. Parrots for pleasure and profit. *12mo. pp. 34. front.* *London.*

The first portion of this little book is devoted to a general account of the care and treatment of Grey Parrots, Blue, Double, Festive, and Yellow-fronted Amazons, Mealy and Yellow-naped Amazons; pp. 17–21 to the breeding of hybrid Parrakeets; pp. 22–31 to an account of six popular parrots by Frank Finn, whilst the concluding pages are devoted to some facts about Macaws, also by Frank Finn.

ARTHUR, STANLEY CLISBY.

1918. The birds of Louisiana. *8vo. pp. 80. 7 pl. 4 figs. index.* *New Orleans.* Bull. No. 5, State of Louisiana, Dept. of Conservation.

An annotated list of the 368 species recorded for the State. Twenty-five blank sheets for notes are bound in at the end of this copy, which is also an autographed presentation from the author.

ARUNDEL, W. B.

1898. Ackworth Birds, etc. *8vo.* (Wanting.) *London.*

ASCHAFFENBURG.

1884–1907. Naturwissenschaftl. Verein zu Aschaffenburg. Mitteilungen. 1–6 (all pub.).

ASH, EDWARD C.

1927. Dogs: their History and Development. *2 vols. 4to. 268 pl.* Vol. I. *pp. 18+384. 108 pl. figs. in text.* Vol. II. *pp. 16+778. 160 pl. figs. in text. index.*

This monumental work describes and discusses the various canine races and their hybrids from prehistoric times until the present. It is a complete history, literary and systematic, of the Dog in all his relations, and leaves little to be said on the subject. Many of the illustrations are reproductions of contemporary prints.

ASHE, THOMAS.

1808. Travels in America, performed in 1806, for the Purpose of Exploring the Rivers Alleghany, Monongahela, Ohio and Mississippi, and Ascertaining the Produce and Condition of their Banks and Vicinity. *8vo. pp. 366.* *Newburyport.*

First American Edition.
It contains 'Birds of the North West Country', 119 species being listed. 'I have been much engaged during my rambles in ascertaining the number and character of the birds.' Not in Coues' *Bibliography.*

ASHMOLEAN MUSEUM, A CATALOGUE OF.

1836. *See* ANONYMOUS.

ASHMOLEAN NATURAL HISTORY SOCIETY, OXFORD.

1901–*date.* Proceedings and Report.

ASHMOLEAN SOCIETY, OXFORD. (Continued as Ashmolean Natural History Society.)

1832–58. Abstracts of the Proceedings. (Wanting.)

1879–81. Journal of the Proceedings.

1866–8. Proceedings.

1872–7. Report.

1835–53. Transactions.

ASHTON, JOHN [1834–1904].

1890. Curious creatures in zoology, with 130 illustrations throughout the text. *8vo. pp. xi+(1)+348. 130 figs. T. of c. index.* *London.*

Compiled to place on record some of those 'strange things' seen by travelers, which are fast falling into oblivion. For instance, on pp. 171–206—with 17 illustrations—we are told of four-footed ducks, two-headed wild geese, woolly hens, and even of a monstrous cock with serpent's tail, etc.

ASIATICK RESEARCHES.

1788–1839. Forerunner of the Journal of the Asiatic Society of Bengal. Vols. I–XX, with General Index to Vols. I–XVIII. *4to.*

ASIATIC SOCIETY OF BENGAL. *Calcutta.*

1788–1839. Asiatic Researches, or Transactions of the Society.

1805. Asiatic Researches, French edition. (Wanting.)

1801–18. Asiatic Researches, London edition.

1832–64. Journal.

1865–1915. Journal (Part 2)—Natural History.

1905–*date.* Journal and Proceedings.

1905–*date.* Memoirs.

1865–1904. Proceedings.

1849–[52]. Catalogue of the birds in the Museum Asiatic Society. *See* BLYTH, E.

1885. Centenary review of the Asiatic society of Bengal from 1784 to 1883. Published by the society. *pp. 762.* *Calcutta.*

ASIATIC SOCIETY OF GREAT BRITAIN AND IRELAND. *See* ROYAL ASIATIC SOCIETY OF GREAT BRITAIN AND IRELAND.

ASIATIC SOCIETY OF JAPAN. *Yokohama.*

1872–1922. Series 1. Transactions.

1924–*date.* Series 2. Transactions.

Publisher's runs of this important periodical to vol. 50 (Series 1) were destroyed by the great Japan earthquake so that complete sets are now very rare.

(ROYAL) ASIATIC SOCIETY, KOREA BRANCH. *Seoul.*

Vols. I–XX and continuation.

ASSOCIATION FRANÇAISE POUR L'AVANCEMENT DES SCIENCES.

1896–*date.* Bulletin Mensuel.

1872–83. Compte rendu.

1884–*date.* Notes et Mémoires.

Many papers on vertebrate zoology are to be found in these important periodicals.

ASSOCIATION LYONNAISE DES AMIS DES SCIENCES NATURELLES. 1874–82. (Wanting.) *Lyon.*

ASSOCIATION DES NATURALISTES DE LEVALLOIS-PERRET.

1895–1913. Annales.

1906–14. Bulletin. (Wanting.)

ASSOCIATION DES NATURALISTES DE NICE ET DES ALPES-MARITIMES. *See* RIVIERA SCIENTIFIQUE. *Nice.*

ASSOCIATION DES NATURALISTES DE LA VALLÉE DU LOING. *Moret-sur-Loing.*
1913–*date*. Bulletin. (Wanting.)

ASSOCIATION FOR PROMOTING RATIONAL HUMANITY TOWARDS THE ANIMAL CREATION. *See* VOICE OF HUMANITY.

ASSOCIATION STRASBOURGEOISE DES AMIS DE L'HISTOIRE NATURELLE. *Strasbourg.*
1852–70. Compte-rendu.

ASTLEY, HUBERT DELAVAL [1860–1925].
1900. My birds in freedom & captivity. *demy 4to. pp. (8)+ix–xvi+254. front. (col.). 21 pl. 17 figs. T. of c. index.* *London.*
A sumptuous volume, beautifully illustrated from drawings by the author who gives his experiences of birds observed in the field and in his own aviary. The present copy is No. 46 of the large paper edition, which was limited to one hundred copies. The frontispiece in this edition is colored, but without letters.

1900. My birds in freedom and captivity. *8vo. pp. (6)+ix–xvi+254. front. 21 pl. 17 figs. T. of c. index.* *London.*
Text and illustrations the same as the larger edition of same date (q.v.) except that the frontispiece is uncolored and bears the lettering 'Checkers Court, Bucks. My old Home'. Attached to the present copy are two letters regarding a memorial to the late author, who died on May 26, 1925.

ASTROLABE, VOYAGE OF THE. *See* DUMONT D'URVILLE, JULES SÉBASTIEN CÉSAR, 1830–5, and VOYAGES, **FRANCH.**

ASTROLABE AND ZÉLÉE, VOYAGE OF THE. *See* DUMONT D'URVILLE, J. S. C., 1842–54, and VOYAGES, **FRANCH.**

ASTRUC, JEAN [1684–1766].
1737. Mémoires pour l'histoire naturelle de la province de Languedoc, divisés en trois parties. *4to. pp. 26+[2]+630. pl. maps.* *Paris.*

ATKINSON, A. E.
1899. Manitoba Birds of Prey, etc. *8vo. Winnipeg.*

ATKINSON, JOHN [1787–1828].
1820. A compendium of the ornithology of Great Britain, with a reference to the anatomy and physiology of birds. *8vo. 22 cm. pp. vi, [ix]–xii, 232. T. of c. index.* *London.*
The preface states the intention of the author to collect 'the information scattered through extensive treatises and the transactions of learned societies—to state the species which have been recently discovered—and to correct those errors in synonyma which the difference in feather in different ages, or at certain times in the year, has frequently produced'.
The present copy is interleaved and full of notes by Yarrell. It belonged to Sir William Jardine, who has made the following notation on a blank fly-leaf: 'This copy of Atkinson belonged to William Yarrell, and was purchased at the Sale of his Library, 15th Novr. 1856 For £1 1*s.* 0*d.* All the notes in pencil throughout the vol. are Mr. Yarrell's.—Wm. Jardine.'

ATKINSON, JOHN CHRISTOPHER [1814–1900].
1861. Sketches in natural history, with an essay on reason and instinct. With eighty-two illustrations by W. S. Coleman, &c., engraved by the brothers Dalziel. *8vo. pp. xii+338+(1). front. 82 figs. (49 birds; 5 eggs). T. of c. index.* *London.*
References to birds are very numerous, scattered throughout the entire work, whilst more than half the illustrations are devoted to them. A second edition appeared in 1865.

1861. British birds' eggs and nests, popularly described. Illustrated by W. S. Coleman. *8vo. pp. vi+122. front. 11 pl. append. index.* *London.*
An edition of an earlier work with the same title, closely printed on poor paper and with uncolored plates and no chart. There is a note on the back of the title-page to the effect that a superior edition could be obtained printed on fine paper and with colored illustrations.

[1866?] British birds' eggs and nests. *8vo. pp. viii+182. front. (col.). 11 pl. (col.). 1 chart (fold. in pocket). append. index.* *London.*
A short account of the habits and nidification of British Birds. In a pocket there is a folded Synoptical Table of British-breeding birds' nests and eggs, showing site and materials of the former, and number, color, and markings of the latter. The work was first issued in 1861, there being many subsequent new editions.

1870. British birds' eggs and nests. New edition. *cap. 8vo. pp. viii+182. front. (col.). 11 pl. (col.). 1 chart (fold. in pocket). append. index.* *London.*
A new edition, apparently without alterations of any kind.

[1898]. British birds' eggs and nests popularly described. Rev. and re-ed. *8vo. pp. vii+(1)+245+(1). front. (col.). 11 pl. (col.). append. index.* *London.*
A new and re-edited edition. Still another printing appeared in 1904, according to Mullens and Swann. The present copy lacks the folding chart.

ATLANTIC SLOPE NATURALIST. 1903–4. *Narberth, Pa.*

ATLANTIS.
1930–*date*. Länder, Völker, Reisen. *4to. Ill. Ed.* Walther Meier. Weekly. *Berlin-Zürich.*

(THE) ATLAS OF NATURE, &c. *See* ANONYMOUS, 1823.

ATTI D. (R.) ACCADEMIA DEI LINCEI.
1847–76. *See* (R.) ACCADEMIA . . . LINCEI, ROMA. *Roma.*

ATTI DELL' ACCADEMIA . . . PADUA.
1872. *See* ACCADEMIA . . . PADUA.

ATTI D. ACCADEMIA DELLA SCIENZE DI SIENA. 1761–74. *See* ACCADEMIA . . . SIENA.

ATTI D. CATANIA ACCADEMIA GICENIA DI SCIENZE NATURALE.
1824–*date*. Various eras.

AUBUSSON, LOUIS MAGAUD D' [1847–1917].
1883. Les oiseaux de la France. Première monographie; corvidés. Histoire naturelle générale et particulière des passereaux déodactyles cultrirostres observés en France. *folio. pp. [2]+107. 20 pl. (18 col.). T. of c.* *Paris.*
A systematic study of the French *Corvidae* with fine, full-page colored plates. The work is the first of a projected series of monographs.

AUDEBERT, JEAN BAPTISTE [1759–1800].
[1799]. An VIII. Histoire naturelle des singes et des makis. *large folio. pp. 2+176. 10 pls. 63 col. pl.* Brunet 550, I. Large paper. House of Commons copy with arms stamped on cover; and bookplate. *Paris.*
This is the first original work of Audebert, the distinguished French naturalist and artist. The figures were drawn and colored after a special process invented by himself.

******** and **VIEILLOT,** L. J. P.
1802. Oiseaux dorés ou à reflets métalliques. Tome premier [Histoire naturelle et générale des colibris, oiseaux-mouches, jacamars et promerops. An XI.] Tome second [Histoire naturelle et générale des

→ Atlantic Sportsman. Vol 1. 1932. Gordon Pub. Co. Winston-Salem N.C.

→ Atti della Soc. Colombaria di Firenze dall' anno 1856 al 1930. Firenze, 1893, 1930, 18 Vol ~~in 8 tracb.~~
orig: (compresovi anche le Costituzioni del 15 dic. 1877)

← Rubert, C. 1911. Migrations des oiseaux. 304 p.

→ Atti della R. Accad. Petrarca de scienze, lettere ed arti in Arezzo. 1846-1930.
Voll. I a IV (1843-46) pri fasc.
V° del 1871, e VII (1887) e 1907-8, 1910, 1924-30,
Arezzo ~~1846-1930~~, ~~in tracb, orig: 50.~~

grimpereaux et des oiseaux de paradis. An XI]. *2 vols. roy. folio.* Vol. I. *pp.* [4]+*x*+*128*+*8*+*28. 85 (col.) pl. index.* Vol. II, *pp.* [4]+*128*+*40. 105 (col.) pl. index.* *Paris.*

One of the early and best known atlases with many beautiful colored plates.

1810. Histoire naturelle des singes et des makis. *12 pts. in 1 vol. folio. 63 col. pl.* *Paris.*

Another edition of the famous atlas.

**** and **VIEILLOT,** L. J. P.

1830–40. Storia naturale generale dei colibri degli uccelli mosca, delle galbule e dei promeropi di G. B. Audebert e L. P. Vieillot; prima traduzione Italiana [fr. the Fr.] con note di Guiseppe de Ceresa. *2 vols. folio. pl.* *Milano.*

CONTENTS. Vol. 1. Text. [2]. Plates.

An Italian impression of Vieillot and Audebert's *Histoire naturelle des oiseaux dorés.* The plates are as in the original work but arranged in different order. This copy belonged to Canon H. B. Tristram.

AUDOUIN, JEAN VICTOR [1797–1841].

1822–30. Dictionnaire Classique d'Histoire Naturelle. 17 vols. *See also* BORY DE SAINT-VINCENT. Ouvrage dirigé par ce dernier collaborateur.

1832–4. Recherches pour servir à l'histoire naturelle du littoral de la France, ou Recueil de mémoires sur l'anatomie, la physiologie, la classification et les mœurs des animaux des nos côtes; ouvrage accompagné de planches faites d'après nature. *2 vols. 24 cm. 23 pl. (partly fold.). fold. map, 4 fold. tab.* No more published. *Paris.*

CONTENTS.—t. 1. Voyage à Granville, aux îles Chausey et à Saint-Malo. L'état actuel des pêches maritimes en France. La pêche de la morue à Terre-Neuve. Recherches sur les naufrages qui ont lieu sur les côtes de France.—t. 2. Annélides. 1. ptie.

Written in conjunction with Milne Edwards.

1883. Audouin's Explication sommaire des planches d'oiseaux de l'Égypte et de la Syrie, pub. par Jules-César Savigny. *8vo. pp.* (2)+*v–vii*+(2)+'*302–430*'. *T. of c. index.* *London.*

Descriptions of, and notes on, the birds of Egypt and Syria, based on the 14 plates published by Savigny in his *Système des Oiseaux de l'Égypte et de la Syrie,* 1810 (q.v.). The discussion of these plates was begun by Savigny but never finished, the entire subject being later delegated to Audouin, whose contribution (here reprinted by the Willughby Society) was first published about 1826 in part IV of the 'Histoire Naturelle, Tome Premier', pp. 251–318 and 336–9, of the 'Description'. The above verbatim transcription, however, is from the Panckouke edition of 1820–30 where it occupies pp. 302–430 and 450–6 of vol. XXIII, published in 1828. The differences between the two editions are not collated in the reprint, although the index p. 139 contains references to both.

AUDUBON, H. S. J.

1856. Boy's Life of Aububon the Naturalist, etc. *New York.*

AUDUBON ASSOCIATION OF THE PACIFIC. *See* THE GULL.

AUDUBON BIRD CHARTS.

n.d. Nos. 1–3. 27×42 in. Issued for school and similar purposes by the National Assocn. of Audubon Societies. *New York.*

(**THE**) **AUDUBON BULLETIN.** (Published by the Illinois Audubon Society, Chicago.)

1916–*date. 8vo. illust. pls.* *Chicago.*

Spring 1916, Winter 1916–17, Spring 1917, Winter 1917–18, Spring and Summer 1918, Winter 1918–19, Spring 1920, Spring 1921, Fall 1921, Spring 1922, Fall 1922, Spring 1923, Fall 1923, Spring and Summer 1924, Summer 1925, Spring and Summer 1926, Spring and Summer 1927.

AUDUBON, JOHN JAMES LAFOREST [1770–1851].

1827–38. The birds of America; from original drawings. *4 vols. double elephant folio. 99½ cm. ccccxxxv col. pl.* *London.*

Engr. t.-p.

Imprint dates: vol. 1, 1827–30; vol. 2, 1831–4; vol. 3, 1834–5; vol. 4, 1835–8, June 20.

Plate lxiv drawn from nature by Lucy Audubon.

Plates i–ii, vi–vii engr. by W. H. Lizars, retouched by R. Havell, junr.; pl. viii–ix engr. by W. H. Lizars; pl. iii–v, ci–cv, cviii, cx engr., printed and coloured by R. Havell, junr.; pl. x–c, cvi–cvii, cix, cxii–ccccxxxv engr., printed and coloured by R. Havell.

Plates ii, vii dated 1829; pl. cvi–cx, cxii–cxv dated 1831; pl. cxxxi–cxl, cxliii–clv dated 1832; pl. clvi–clxxvii, clxxix–clxxxii, clxxxiv–clxxxv dated 1833; pl. clxxxvi–cxcvii, cxcix, ccii–ccxxxv dated 1834; pl. ccxxxvi–cclxxxv, cclxxxvii, cclxxxix–ccxc dated 1835; pl. cclxxxvi, cclxxxviii, ccxci–cccl dated 1836; pl. cccli–cccc dated 1837; pl. cccci–ccccxxxv dated 1838.

Plate cclx marked 'ccxl'.

Originally issued in 87 pts.

'The plates were published without any text, to avoid the necessity of furnishing copies gratis to the public libraries in England, agreeably to the law of copyright.'—Sabin, A dictionary of books relating to America, vol. 1, p. 315.

Text to accompany the plates was published in 5 vols., roy. 8vo, Edinburgh, 1831–9, under title 'Ornithological biography, or An account of the habits of the birds of the United States of America . . .' Later editions, of text and plates combined, with alterations, were published in 7 and 8 vols., roy. 8vo, under title 'The birds of America, from drawings in the United States and their territories'.

The foregoing collation is from the cards of the Library of Congress, and corresponds exactly with the copy in hand. This work is probably the most famous of the rare plates of American birds. The present volumes were purchased and presented to the McGill general library by 100 citizens of Montreal in 1860.

1831. American ornithology . . . By A. Wilson and C. L. Bonaparte . . . [with contributions by J. J. Audubon]. *See* WILSON, A. and BONAPARTE, C. L.

1831. Ornithological Biography, or an account of the habits of the birds of the United States of America; accompanied by descriptions of the objects represented in the work entitled *The Birds of America,* and interspersed with delineations of American scenery and manners. *1 vol. large 8vo. pp. xxiv*+*512. Prospectus of pp. 16.* Judah Dobson and H. H. Porter. *Philadelphia.*

A separate edition of the Edinburgh issue—5 vols., 1831–9—with minor changes in the Introduction and text. The appended prospectus is an advertisement of the *Birds of America,* with a list of the 100 plates in the first volume of that work and a roster of subscribers to that work. In the E.S.W. Library is also another edition of this vol. I, practically identical with the foregoing except that the title-page bears the imprint 'E. L. Carey and A. Hart—Chestnut St. 1832'. See W. C. Braislin, *Auk,* p. 360, 1918. Both these volumes are *ex-libris* H. W. Feilden.

1831–9. Ornithological biography, etc. *5 vols. 8vo. illust. text.* *Edinburgh.*

As stated in the title, the above volumes are intended to furnish the text for the author's famous folio edition of *Birds of America.* To this is added, in vol. V, 'Species seen within the limits of the United States' but not figured in *Birds of America,* as well as an

[**AUDUBON,** JOHN JAMES LAFOREST [1770–1851] (contd.)]

appendix with additional descriptive and other matter. Eighteen new species are described and five deleted. A brief collation is the following:
Vol. I. 1831. *pp. xxiv+512. index.* Vol. II. 1834. *pp. xxxii+588. index.* Vol. III. 1835. *9 figs. in text.* Vol. IV. 1838. *pp. xxviii+618. 39 figs. in text. index.* Vol. V. 1839. *pp. xxxix+664. index. 93 figs. in text.*
A good deal of doubt and confusion arises in the mind of the collector who attempts to gather the issues of Audubon's *Ornithological Biography.* The McGill libraries have all the important editions. See Witmer Stone's illuminating account of these numerous printings in the *Auk*, 1906, p. 298. The volumes in hand form a valuable association copy, bearing the autograph inscription 'To Baron G. Cuvier—with the highest respect of the author—Paris, 17th. May 1831.' As all Audubonia are treasured by the McGill Library this copy is regarded as of great sentimental value.

1832. Ornithological biography. [Vol. I.] Pub. by E. L. Carey and A. Hart—Chestnut St. 1832. Printed by James Kay, Jun. & Co., No. 4 Minor St. *Philadelphia.*

This is evidently a rare, separate printing of vol. I, of the five-volume Edinburgh edition. W. C. Braislin (*Auk*, 1918, p. 360) has reviewed this volume with the imprint of 1835, but no one seems to find any reference to the present (1832) volume. It is almost identical with vol. I of the regular Edinburgh 1831–9 printing.

1833. Under the special patronage of her most excellent majesty Queen Adelaide. *The birds of America*, engraved from drawings made in the United States and their territories. Published by the author; and to be seen at Mr. R. Havell's Printseller, Engraver, and Publisher, 77, Oxford Street, opposite the Pantheon, London, where a book is open for subscribers' names. *8vo. pp. 16. T. of c.* *London.*

A prospectus of the author's work, *The Birds of America*, setting forth the number of plates already published in vol. I, as well as those of vol. II, where they could be seen, price, and list of subscribers to date. The first volume consisted of 100 plates, representing 99 species of birds, and was finished in 1830, vols. II and III of equal size being expected to complete the work, of which five numbers were to appear yearly at the price of two guineas each number, eleven having so far appeared of vol. II, containing 55 plates figuring 54 species.

1835. Ornithological Biography. Vol. II. *roy. 8vo. pp. xxxii+588. index.* Hilliard, Gray, and Company, **Boston,** 1835.

This volume corresponds to and was published shortly after vol. II of the Edinburgh edition. Braislin (*Auk*, vol. 35, p. 361) points out that this work is the only one of the series with a Boston imprint and that it differs materially from the Edinburgh printing. The present copy is from the library of H. W. Feilden. Vols. III and IV bear the Edinburgh imprint.

1835. Ornithological Biography. Vol. III, **Edinburgh.** *large 8vo. pp. xvi+638. index. 9 cuts in the text.*

Noted as a separate work, though really forming part of his famous (second or) Edinburgh edition. The introduction bears date Dec. 1st, 1835. The present copy is from the library of H. W. Feilden and has the usual advertisement of the forthcoming *Birds of America* with a list of new subscribers.

1839. A synopsis of the birds of North America. *8vo. pp. xii+359. T. of c.* *London.*

A systematic classification of the birds treated in the folio, *Birds of America*, and *Ornithological Biography*, with references to the plates and the text, respectively. Two species given in the *Biography* are suppressed and two others added making the total the same, 491 spp. This work is sometimes ascribed largely to Macgillivray, to whom acknowledgements are made by Audubon in the preface. Several new specific names date from this volume. The present copy is a presentation one to Osbert Salvin from D. G. Elliot, 1876.

1840–4. (The) birds of America; from drawings made in the United States and their territories. *7 vols. 8vo. 500 col. pl. T. of c. New York & Phil.*

The above forms the original 8vo edition, issued by the author in 100 parts, and forming the text of the 1831–9 printing of the *Ornithological Biography.* The plates are reduced and somewhat altered copies of the bird portraits in the folio, 1827–38 edition of the *Birds of America.* Seventeen new species are described and pictured in an appendix, the plates in all cases being rearranged to correspond with the textual matter. The following is a brief collation of each volume:
Vol. I. 1840. *pp. viii+256. 70 col. pl. 2 text figs. T. of c.*
Vol. II. 1841. *pp. vii+205. 70 col. pl. 4 text figs. T. of c.*
Vol. III. 1841. *pp. viii+233. 70 col. pl. 6 text figs.*
Vol. IV. 1842. *pp. viii+321. 70 col. pl. 28 text figs. T. of c.*
Vol. V. 1842. *pp. viii+346. 70 col. pl. 14 text figs. T. of c.*
Vol. VI. 1843. *pp. vii+457. 70 col. pl. 25 text figs. T. of c.*
Vol. VII. 1844. *pp. ix+371. 80 col. pl. 18 text figs. T. of c. index.*
The copy in hand has the following on the blank title-page: 'Montreal, L.C., Sept. 29/42. It is with delight, and the most grateful sentiments of my poor heart towards you that I subscribe myself as your sincere friend and servant, John J. Audubon. To Frederic Griffin, Esq. Montreal, Canada.'

**** and **BACHMAN,** JOHN.

1845–8. The viviparous quadrupeds of North America. *3 vols. 71×58 cm. 150 col. pl.* Each vol. contains fifty colored plates. *New York.*

Plates lxxxvi, xci, xciii–xcviii, c, cii–cv, cvii–cviii, cx–cxix, cxxi–cl drawn from nature by J. W. Audubon.

Plate [cxxix] numbered cxxiv.

Originally issued in 30 parts.

This edition appears in atlas form. The complete work (see next title) also has 3 vols. text.

**** and **BACHMAN,** J.

1845–54. Viviparous Quadrupeds of North America. *8vo. 3 vols. text. 3 vols. Atlas (150 col. pl.). folio.*

**** and **BACHMAN,** JOHN.

1854. The quadrupeds of North America. *3 vols. col. pl.* Vol. 3, *n.d.* *New York.*

Supplementary to their earlier work on mammalogy.

**** and **BAZIN,** P. F. A. [1796–1865].

1857. Scénes de la Nature dans les États-Unis. *2 vols.* *Paris.*

1860. The Birds of America, from original drawings by John James Audubon. Re-issued by J. W. Audubon. Vol. I (all pub.). *Atlas. elephant folio. 150 plates on 105 sheets.* Chromolith. by J. Bien, 180 Broadway. Roe Lockwood and Son, New York.

This was an attempt to reproduce by chromolithography the original 435 colored plates of the famous 1827–38 elephant folio. It was interrupted by the civil war and only 150 plates appeared with, however, a reprint of the text of the first 8vo (1840–4) edition (without the colored plates) as descriptive matter. The McGill Library has an incomplete set of these plates which are by no means equal in merit to the original hand-colored drawings. A full description of the above is given by Zimmer (*Ayer Cat.*, p. 24). *See* AUDUBON, **1861**, for an account of the text intended to accompany these chromolithographs.

1861. The birds of America, from drawings made in the United States and their territories. Re-issued by J. W. Audubon. *500 col. pl.* Copyright, 1839. Every vol. title dated 1861, New York. *7 vols. Roy. 8vo.* Vol. I, *70 col. pl. pp. viii+246. T. of c.* Vol. II, *col. pl. 71–140. pp. vii+11–199. T. of c.* Vol. III, *col. pl. 141–210. pp. viii+9–233.* Vol. IV, *col. pl. 211–80. pp. viii+9–321. T. of c.* Vol. V, *col. pl. 281–350. pp. viii+9–346. T. of c.* Vol. VI, *col. pl. 351–420. pp. viii+9–456. T. of c.* Vol. VII, *col. pl. 421–500. pp. vii+9–372. Index to seven vols. at end of last volume.* A few woodcuts are scattered throughout the text. One of the reissues of the 1840 octavo form of this remarkable work. It does not differ materially from the 1860 edition described by Zimmer (*Ayer*

Catalogue, p. 23). The present quarto copy was printed by R. Craighead, the plate impressions are clear and the colors good.

****, **AUDUBON,** LUCY and **BUCHANAN,** ROBERT.

1868. The Life and adventures of John James Audubon, the naturalist. *8vo. pp. viii+366. front. (portr.). 1 fig. (vignette).* *London.*

The life and adventures of Audubon by Robt. Buchanan, compiled from a large manuscript called the 'Life of Audubon', prepared by a friend of Mrs. Audubon's, chiefly consisting of extracts from the diary of the naturalist, but here cut down to about one-fifth of the original by the present editor, certain of whose passages caused pain to the naturalist's wife who thereupon edited another edition in 1869 (q.v.) with some additions, and the omission of the objectionable passages.

[**1870**]. The birds of America, from drawings made in the United States and their territories. *8 vols. 8vo. 500 col. pl. text-figs. T. of c. indexes.* *George R. Lockwood, New York.*

The quoted date is from the copyright notice. The above is the last complete edition of Audubon's *Birds of America* with impressions of the 1859 plates, in many instances somewhat worn. There are some textual variations from the octavo issue of 1860. Briefly collated the eight volumes in hand are as follows:
Vol. I. *pp. xv+246. 70 col. pl. 2 figs. in text.*
Vol. II. *pp. viii+199. 70 col. pl. 4 figs. in text.*
Vol. III. *pp. viii+233. 70 col. pl. 6 figs. in text.*
Vol. IV. *pp. viii+321. 70 col. pl. 28 figs. in text.*
Vol. V. *pp. viii+346. 50 col. pl. 14 figs. in text.*
Vol. VI. *pp. vii+298. 44 col. pl. 19 figs. in text.*
Vol. VII. *pp. vii+285. 46 col. pl. 12 figs. in text.*
Vol. VIII. *pp. viii+256. 60 col. pl. 12 text figs. index.*

****, **AUDUBON,** MARIA R. and **COUES,** ELLIOTT, eds.

1897. Audubon and his journals, with zoological and other notes. *2 vols. 8vo.* Vol. I, *pp. xiv+532. front. (portr.). 21 pl. T. of c.* Vol. II, *pp. viii+554+(2). front. 24 pl. (10 diplomas). T. of c. index.* *New York.*

This edition of the life of Audubon by his granddaughter, is probably more full, and more accurate, than any other heretofore appearing, containing as it does the European Journal of 1826, the Labrador Journal of 1833, and the Missouri River Journal of 1843, the first possibly being the most generally interesting. In addition to these Journals are the Episodes introduced in the letterpress of the first three volumes of the *Ornithological Biographies*, but are not in the octavo edition of the *Birds of America*, and it is believed no entire reprint of them has been made before. These are here arranged chronologically. Another edition appeared in 1900 (q.v.) with the word 'Illustrated' added to the title-page.

****, **AUDUBON,** MARIA R. and **COUES,** ELLIOTT, eds.

1900. Audubon and his journals. *Illust. 2 vols. 8vo.* Vol. I, *pp. xiv+532. front. (portr.). 21 pl. T. of c..* Vol. II, *pp. viii+554+(2). front. 24 pl. (10 diplomas). T. of c. index.* *New York.*

An edition which differs only from that of the original published in 1897 (q.v.) in having the word 'Illustrated' added to the title-page, and the attachment of two autographed letters from the editor, one to Dr. Casey Wood and the other to Miss Raymond regarding the receipt of some MSS. and other matters.

1901. *See* BUTTERWORTH, H.

1917. *See* HERRICK, F. H.

1930. The Journal of J. J. Audubon, 1820–21; also the Journal, 1840–41. Published by the *Club of Odd Volumes.* *Boston, Mass.*

Both these biographies are of importance to the student of zoology, and of the life of a distinguished naturalist.

1930. 'Audacious', Audubon. *See* MUSCHAMP, E. A.

AUDUBON, JOHN WOODHOUSE.

1906. Audubon's western journal. *Cleveland.*

AUDUBON, LUCY GREEN BAKEWELL [1788–1874].

1869. The life of John James Audubon, the naturalist. Ed. by his widow. With an introduction by Jas. Grant Wilson. *8vo. pp. (2)+x+11–443. front. (portr.). 1 fig. (vignette). T. of c.* *New York.*

Substantially the work edited by Lucy Audubon and Robt. Buchanan, 1868 (q.v.), with some additions, and the omission of several objectionable passages.

AUDUBON, MARIA R.

1897. Audubon and his journals, by M. R. Audubon, with zoological and other notes by E. Coues. *See* AUDUBON, J. J. and AUDUBON, MARIA R., etc., 1897; also the same title, 1900.

AUDUBON MAGAZINE, THE.

1887–8. Published in the interests of the Audubon Society for the protection of Birds. Monthly. Pictured wrappers. Forest and Stream Publishing Co., *New York.* Vol. I, No. 1. Feb. 1887–No. 12. Jan. 1888. *viii+288 pp. Illust.* Vol. II, No. 1. Feb. 1888–No. 12. Jan. 1889. *vi+264 pp. illust.* (All issued.)

During its brief career this, the official organ of the American Audubon Society, did excellent work in its chosen department and not only furnished useful information for the institution of branch societies in America but published papers of scientific value to ornithologists in general. Its activities are now continued by *Bird-Lore* (q.v.); also by the organs of State and other local Audubon Associations.
Each number contained a reduced black and white reproduction of an Audubon plate. Geo. B. Grinnell (Pres. of the Society), J. A. Allen, Robt. Ridgway, Florence A. Merriam, R. W. Shufeldt, and other well-known writers contributed to its columns. It is said that the connection with a paper devoted to the hunting of game was the chief cause of its suspension.

AUDUBON NATIONAL SOCIETIES. Bulletin. *See* NAT. ASSOC. OF AUD. SOC. BULLETIN.

AUDUBON POCKET BIRD COLLECTIONS.

n.d. Folders 1–4; 5×8 in. Pub. by the National Assocn. of Audubon Societies, New York. For teaching purposes.

AUDUBON SOCIETIES, NATIONAL ASSOCN. OF.

n.d. Bird Study Book and Pocket Nature Library *4 vols.* Ed. by T. Gilbert Pearson. *N.Y.*

AUDUBON SOCIETIES, NATIONAL.

1903–*date.* Educational Leaflets. Series to 1920 has 101 leaflets.

1904–*date.* Reports.

AUDUBON SOCIETY OF ILLINOIS. *See* ILLINOIS AUDUBON SOCIETY.

AUDUBON SOCIETY OF NEW HAMPSHIRE. (Bulletin. *4to.*)

July 1921–*date.* *8vo.* Incorporated under the laws of the State of New Hampshire for the protection of our native birds. *Strafford, N. H.*

This useful, well written little periodical concerns itself with the conservation of bird life and with the activities connected with it. It contains short papers of members of the Society, including Dr. George S. Foster, W. H. Huse, and others.
Vol. 1. 1921–2. No. 1, July–Sept. *15 pp.*; No. 2, Oct.–Dec. *13 pp.*; No. 3, Jan.–March 1922. *12 pp.*; No. 4, April–June. *14 pp.*
2. 1922–3. No. 1, July–Sept. *11 pp.*; No. 2, Oct.–Dec. *11 pp.*; No. 3, Jan.–March 1923. *10 pp.*; No. 4, April–June. *10 pp.*
3. 1923–4. No. 1, July–Sept. *11 pp.*; No. 2, Oct.–Dec. *11 pp.*; No. 3, Jan.–March 1924. *11 pp.*; No. 4, April–June. *10 pp.*

AUDUBON SOCIETY FOR THE PROTECTION OF BIRDS. *See* AUDUBON MAGAZINE.

AUDUBON SOCIETY OF THE WESTERN PACIFIC.
1923. Bulletin. *illust.*

AUGSBURG. BERICHT DER NATURHISTORISCHER VEREIN.
1848–*date. 4to and folio.* In 1887 the name of the *Verein* was changed to *Naturwissenschaftlicher Verein f. Schwaben u. Neuberg.* Nos. 1–7 are in 4to, the remainder folio. A subject index to 1896 is given in vol. XXXII.

AUK, THE. A Quarterly Journal of Ornithology.
1876–*date.* Published by the American Ornithologists' Union. *Cambridge, Mass.* With Index and table of contents to each vol. General Indexes.
This periodical began as *The Bulletin of the Nuttall Ornithological Club* (q.v.). Vols. 1 to 8, 1876–83, the initial issue of the *Auk* (pictured, tinted wrappers), being published as vol. IX, Old Series. Both serials are in detail as follows:
Bulletin of the Nuttall Ornithological Club. A Quarterly Journal of Ornithology.
Vol. I. 1876. Nos. I–IV, Apr. 1876–Nov. 1876. *115 pp. col. pl. index.*
Editor: J. A. Allen. Associate Editors: S. F. Baird and Elliott Coues.
Vol. II. 1877. Nos. I–IV, Jan.–Oct. *115 pp. index. illust.*
Vol. III. 1878. Nos. I–IV, Jan.–Oct. *200 pp. index. col. pl.*
Vol. IV. 1879. Nos. I–IV, Jan.–Oct. *256 pp. index. col. pl.*
Vol. V. 1880. Nos. I–IV, Jan.–Oct. *256 pp. index. col. pl.*
Vol. VI. 1881. Nos. I–IV, Jan.–Oct. *265 pp. index. col. pl.*
Vol. VII. 1882. Nos. I–IV, Jan.–Oct. *275 pp. index. col. pl.*
Vol. VIII. 1883. Nos. I–IV, Jan.–Oct. *260 pp. index. illust.*
The Auk (New Series). Continuation of the Bulletin N. O. Club.
Vol. IX, Old Series, 1884 (vol. I, New Series). Nos. I–IV, Jan.–Oct. *419 pp. index. col. pl.*
Editor: J. A. Allen. Associate Editors: Elliott Coues, Robt. Ridgway, William Brewster, Montague Chamberlin. Pub. by Estes and Lauriat, *Boston, Mass.*
Vol. X. 1885. (Old Series.) II. New Series. Nos. I–IV, Jan.–Oct. *411 pp. index. illust.*
Vol. XI. 1886. (O.S.) III. (N.S.) Nos. I–IV, Jan.–Oct. *529 pp. index. illust.*
Vol. XII. 1887. (IV. N.S.) Nos. I–IV, Jan.–Oct. *381 pp. index. illust.*
Pub. by L. S. Foster, *New York.*
Vol. XIII. 1888. (V. N.S.) Nos. I–IV, Jan.–Oct. *484 pp. index. illust.*
Sole Associate Editor: C. F. Batchelder.
Vol. XIV. 1889. (VI. N.S.) Nos. I–IV, Jan.–Oct. *359 pp. index. illust.*
Vol. XV. 1890. (VII. N.S.) Nos. I–IV, Jan.–Oct. *434 pp. index. illust.*
Vol. XVI. 1891. (VIII. N.S.) Nos. I–IV, Jan.–Oct. *421 pp. index. col. pl.*
Vol. XVII. 1892. (IX. N.S.) Nos. I–IV, Jan.–Oct. *420 pp. index. col. pl.*
Vol. XVIII. 1893. (X. N.S.) Nos. I–IV, Jan.–Oct. *407 pp. index. col. pl.*
Vol. XIX. 1894. (XI. N.S.) Nos. I–IV, Jan.–Oct. *359 pp. index. col. pl.*
Sole Associate Editor: Frank M. Chapman.
Vol. XX. 1895. (XII. N.S.) Nos. I–IV, Jan.–Oct. *418 pp. index. col. pl.*
Vol. XXI. 1896. (XIII. N.S.) Nos. I–IV, Jan.–Oct. *366 pp. index. col. pl.*
Vol. XXII. 1897. (XIV. N.S.) Nos. I–IV, Jan.–Oct. *452 pp. index. col. pl.*
Vol. XXIII. 1898. (XV. N.S.) Nos. I–IV, Jan.–Oct. *361 pp. index. col. pl.*
Vol. XXIV. 1899. (XVI. N.S.) Nos. I–IV, Jan.–Oct. *400 pp. index. col. pl.*
Vol. XXV. 1900. (XVII. N.S.) Nos. I–IV, Jan.–Oct. *424 pp. index. col. pl.*
[General] Index to *Bulletin* (vols. I–VII) and *The Auk* (vols. IX–XXV), 1876–1900. Ed. by Jonathan Dwight, Jr.
Vol. XXVI. 1901. (XVIII. N.S.) Nos. I–IV, Jan.–Oct. *436 pp. index. col. pl.*
Vol. XXVII. 1902. (XIX. N.S.) Nos. I–IV, Jan.–Oct. *447 pp. index. illust.*
Vol. XXVIII. 1903. (XX. N.S.) Nos. I–IV, Jan.–Oct. *480 pp. index. illust.*
Published by the Union at *Cambridge, Mass.*
Vol. XXIX. 1904. (XXI. N.S.) Nos. I–IV, Jan.–Oct. *531 pp. index. illust.*
Vol. XXX. 1905. (XXII. N.S.) Nos. I–IV, Jan.–Oct. *470 pp. index. illust.*
Vol. XXXI. 1906. (XXIII. N.S.) Nos. I–IV, Jan.–Oct. *518 pp. index. illust.*
Vol. XXXII. 1907. (XXIV. N.S.) Nos. I–IV, Jan.–Oct. *492 pp. index. illust.*
Vol. XXXIII. 1908. (XXV. N.S.) Nos. I–IV, Jan.–Oct. *533 pp. index. illust.*
Vol. XXXIV. 1909. (XXVI. N.S.) Nos. I–IV, Jan.–Oct. *483 pp. index. illust.*
Vol. XXXV. 1910. (XXVII. N.S.) Nos. I–IV, Jan.–Oct. *516 pp. index. illust.*
Ten-Year Index. Vols. XVIII–XXVII (N.S.), 1901–10. Ed. by T. S. Palmer and W. W. Cooke. *xxviii+250 pp.*
Vol. XXXVI. 1911. (XXVIII. N.S.) Nos. I–IV, Jan.–Oct. *549 pp. index. col. pl.*
Vol. XXXVII. 1912. (XXIX. N.S.) Nos. I–IV, Jan.–Oct. *604 pp. index. illust.*
Editor: Witmer Stone.
Vol. XXXVIII. 1913. (XXX. N.S.) Nos. I–IV, Jan.–Oct. *658 pp. index. illust.*
Vol. XXXIX. 1914. (XXXI. N.S.) Nos. I–IV, Jan.–Oct. *593 pp. index. illust.*
Vol. XL. 1915. (XXXII. N.S.) Nos. I–IV, Jan.–Oct. *568 pp. index. illust.*
Vol. XLI. 1916. (XXXIII. N.S.) Nos. I–IV, Jan.–Oct. *489 pp. index. illust.*
Vol. XLII. 1917. (XXXIV. N.S.) Nos. I–IV, Jan.–Oct. *542 pp. index. illust.*
Vol. XLIII. 1918. (XXXV. N.S.) Nos. I–IV, Jan.–Oct. *541 pp. index. illust.*
Vol. XLIV. 1919. (XXXVI. N.S.) Nos. I–IV, Jan.–Oct. *608 pp. index. illust.*
Vol. XLV. 1920. (XXXVII. N.S.) Nos. I–IV, Jan.–Oct. *675 pp. index. col. pl.*

Vol. XLVI. 1921. (XXXVIII. N.S.) Nos. I–IV, Jan.–Oct. *652 pp. index. illust.*
Vol. XLVII. 1922. (XXXIX. N.S.) Nos. I, Jan.→

This the premier ornithological magazine in the United States ranks easily among the two or three chief world periodicals on the subject. During a career covering more than half a century it has occupied a foremost place in avian literature, opening its columns not only to a discussion of subjects of local interest but to foreign contributions and to foreign writers. From the very beginning it has given much space to practical and carefully prepared critiques of ornithological publications in all languages and its General Notes are of the highest value to scholars and research students. Practically every American (including Canadian) ornithologist of note has contributed one or more articles to its volumes.
Of the earlier contributors may be mentioned—in addition to the editors and assistants—Bendire, Stejneger, Barrows, Shufeldt, E. W. Nelson, G. N. Lawrence, C. Hart Merriam, Henshaw, the Grinnells, S. A. Forbes, Cory, Walter Bryan, Wm. Dutcher, H. B. Bailey, W. E. Saunders, Thos. McIlwraith, H. Nehrling, T. S. Palmer, L. S. Foster, H. C. Oberhalser, Chas. W. Richmond, Jonathan Dwight, Jr., D. G. Elliot, Frank Chapman, and many another faithful worker—some of them still active members of the A.O.U.

AUKLET. An occasional journal of ornithological minutiae.
No. 2 sub-title reads: An occasional journal of awkward Murre-Murres.
No. 3 sub-title reads: A semi-occasional journal of ornithological disputanda.
Vol. 1, no. 1, Oct. 1920. *11 pp. illust.*
no. 2, Oct. 1922. *16 pp. illust.*
no. 3, Oct. 1923. *15 pp. illust.*
no. 4, Oct. 1925.

A facetious and anonymous periodical intended to furnish a little harmless fun at the expense of the members of the A.O.U. It may, in the distant future, possess some value in throwing light on the fads and fancies of contemporary ornithologists.

AURIVILLIUS, C. *See* LINNAEUS, C., 1907.

AUS DER HEIMAT. 1859–66. (Wanting.) *Glogau, Leipzig.*

AUS DER HEIMAT. Naturwiss. Zeitschrift. 1888–*date.* Hrsg. v. Dr. K. G. Lutz. Jahrg. 1. (Lehrverein für Naturkunde.) *Stuttgart.*

AUS DER HEIMAT, FÜR DIE HEIMAT. 1908–*date.* *Geestemünde.*

1898–1904. Sub-title: Jahrbuch des Vereins für Naturkunde an der Unterweser. (Wanting.)

AUS DER NATUR. 1852–75. *Leipzig.*

AUS DER NATUR. Zeitschrift für all. Naturfreunde. 1905–22. (Wanting.) *Leipzig.*

AUS DER NATUR. Zeitschrift f. d. naturwiss. u. erdkundl. Unterricht.
1905–15. Jahrg. 1–12. Hrsg. v. W. Schoenichen. *Leipzig.*

AUS NATUR UND KULTUR DER EIFEL. 1922. (Wanting.) *Bonn-a-Rhein.*

AUS NATUR UND MUSEUM. *See* SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT. BERICHT.

AUS NATUR UND TECHNIK. 1921–2. (Wanting.) *Zürich.*

AUS DER ORNITHOLOGISCHEN LITERATUR RUSSLANDS. BERICHTE UND ÜBERSETZUNG.
No. 1+ [1919?]+ *8vo.* Edited by Herman Grote. *Halle a. S.*

This periodical is published for the purpose of making available tothose who do not read Russian the most important ornithological literature (or a review of it) that has appeared in Russia since the Great War. Here are to be found German translations of contributions from the best known Russian naturalists—Shitkow, Bianchi, Sarudny, and others.
The fourth number contains the congratulations of the Editor to the veteran ornithologist, Professor Schalow, on his 70th birthday, and is issued as a 'Sonderheft' to mark the event.
1. *n.d.* [1919?] *pp. 1–16.*
2. *n.d.* [1920?] *pp. 17–32.*
3. Nov. 1921. *pp. 33–56.*
4. Jan. 1922. *pp. 57–72.*

AUSTEN, NATHANIEL LAURENCE [1847–74].
1877. Natural history papers and memoir of N. Laurence Austen. Edited by Frank Buckland. *8vo. pp. xliv+(2)+190. front.(portr.). 8 pl. T. of c.* *London.*

The Memoir occupies pp. ix–xliv, the Natural History Papers pp. 1–190. Among the latter are the nesting of the Eagle Owl at Croydon, Ravens nesting in confinement, Notes on the Golden-crested Wren, Habits of the Titmouse, Breeding Australian Paroquets, and on the form and structure of *Dinornis giganteus.*

AUSTEN, GODWIN-.
See GODWIN-AUSTEN.

AUSTRALASIAN ASSOCN. FOR THE ADVANCEMENT OF SCIENCE. Reports. 1888–*date.* *Sydney.*

(R.) AUSTRALASIAN ORNITHOLOGISTS' CLUB. *See* EMU.

AUSTRAL AVIAN RECORD, THE. A scientific Journal devoted Primarily to the Study of the Australian Avifauna. Issued in connection with the Austral Avian Museum, Watford, Herts, England.
1912–*date.* Editor: Gregory M. Mathews. *London,* Witherby & Co. *8vo.* Vols. I–V. 1912–22. Tinted, pictured wrappers. Issued irregularly. As a rule, 8 nos. to a volume. Indices. Each number has table of contents. Col. pl. and figures. Current. In detail:
Vol. I. 1912–13. Nos. 1–8, Jan. 1912–Mar. 1913. *196 pp.* Nos. 6 and 7, Feb. 1913, form a double part.
Vol. II. 1913–15. Nos. 1–8, Aug. 1913–Aug. 1915. *220 pp.* Nos. 2 and 3, Oct. 1913, form a single part. No. 8 is Index to vols. I and II. The Austral Avian Museum removed to Foulis Court, Fair Oak, Hampshire, England.
Vol. III. 1915–20. Nos. 1–8, June 1915–Feb. 1920. *180 pp. col. pls. and other figs.*
Vol. IV. May 1920–Mar. 1922. Nos. 1–7. *234 pp. index.* Nos. 2 and 3, 4 and 5 form double parts.
Vol. V. Nos. 1–3. [All published to June 3, 1923.]

This valuable journal is edited by and the contributions are chiefly from the pen of Gregory Mathews, the well-known author of the *Birds of Australia,* and by his associate Tom Iredale. A number of other ornithologists have furnished papers—practically all on the subject of Australasian bird life, and of its literature. It is beautifully illustrated by colored plates and well executed text figures.

AUSTRALIA FELIX. *See* WHEELWRIGHT, H. W., 1861.

AUSTRALIAN MUSEUM, SYDNEY.
1851–*date.* Memoirs.
1890–*date.* Miscellaneous Publications.
1890–*date.* Records.
1874–*date.* Reports.

[**AUSTRALIAN MUSEUM, SIDNEY** (*contd.*)]

1876–94. Catalogue of the Australian birds in the Australian Museum. *See* RAMSAY, EDWARD PIERSON.

1883. Catalogue of a collection of fossils in the Australian Museum. With introductory notes. *8vo. pp. xxviii+159. 1 table (fold.).* *Sydney.*

The present catalogue has been printed from the MS. of the dealer (T. H. Feilding) from whom it was purchased, hence occasional discrepancies in nomenclature. The introduction, pp. v–xxvi, gives a quick glance of the whole collection as it stands, which represents the succession of animals and plants which lived in the different ages of the earth. The fossil remains of birds are not very numerous, but references to those that do occur will be found in the introduction, pp. v–xxvi.

1883. Guide to the contents of the Australian Museum. *8vo. pp. 6+56.* *Sydney.*

1888. Catalogue of the fishes in the collection of the Australian Museum. Pt. 1. Recent palaeichthyan fishes by J. D. Ogilby. *8vo. pp. 6+26+[2].* *Sydney.*

1889. Lord Howe Island; its zoology, geology, and physical characters. *8vo. pp. (10)+132+(14). front. (map fold.). 10 pl. (3 maps fold., 1 col.). T. of c.* *Sydney.*

An account of the collections made by the Australian Museum collecting party, Aug.–Sept. 1887. The birds are described on pp. 8–18, with notes on the oology, pp. 45–8, and one plate. Forty-one species are listed, of which nine are peculiar to the island.

AUSTRALIAN NATURALIST. (**Naturalists' Society of New South Wales.**) **1906**–*date.* *Sydney.*

AUSTRALIAN ZOOLOGIST. (**Royal Zoological Society of New South Wales.**) **1914**–*date.* *Sydney.*

AUVERGNE. Bulletin de la Soc. d'hist. naturelle d'Auvergne.
1922–7. Nos. 1–12.

AVEBURY, *Lord. See* ANONYMOUS.
n.d. Marvels of the Universe.

AVERILL, CHARLES K., *Jr.*
1892. List of birds found in the vicinity of Bridgeport, Connecticut, prepared for the Bridgeport scientific society. *8vo. pp. 19.* *Bridgeport.*

A local list of 246 species.

AVERROËS. (ABU'L WELID MUHAMMAD IBN RUSHD AL-MALIKI) [1126–98].
5 Oct., 1482. Colliget. Ferrara, Lorenzo of Valenza, et Socii. *sm. folio. Editio princeps.* [O.]

The extremely rare first Latin edition of the works of this famous Arabian physician-naturalist.

1497. Destructiones destructionum (with Augustus Niphus: De sensu agente, etc.). Press of Bonetus Locatellus. *folio.* Partly reissues of Aristotle's *Physica*, etc. [O.] *Venice.*

The physician Averroës was the prominent 'liason' naturalist-philosopher that functioned for Arabian and European medieval thought. He was the chief commentator on and exponent of the Aristotelean system, and ought to be well considered by students of early biology. Osler says that 'he blazed a trail back to Aristotle but actually leading to Nature'.

Dec., 1497. Colliget (with Avenzoar: Liber Theizir). Press of Otinus de Luna. This is the third of the first eight printed editions of Averroës. [O.] *sm. folio.* *Venice.*

AVES BRITANNICAE.
1836. A Systematic Catalogue of British Birds. *8vo.* *Manchester.*

AVICENNA. [ABU 'ALI HUSAIN IBN SĪNĀ (980–1037).]
17th cent. Arabic MS. Kanun. 5 books. The famous author, physician, naturalist, and philosopher was born in Bokhara.

He compiled this large work which he called the Canon. It was much quoted by Arabians and other in the twelfth to fourteenth centuries and the doctrines taught were dominant in European medical schools during that period—and longer. He also wrote a work on animal life, based on the teachings of Aristotle. [O.]

n.d. [after 1500]. De Animalibus, translated by Michael Scott (J. and G. de Gregariis, *Venice*). Hain—C. 2220. Proctor 4563. [O.]

1891. Danish-nāma-i-Ala'i. Natural history and natural philosophy. Persian copy of the 11th-century original. *sm. 4to. pp. 72.* Lithographed. *Haydarabad.*

This well-known work, of which there are many editions, is very rare in the present state.

AVICULA, Giornale ornithologico italiano, per lo studio dell' Avifauna italica e per tutto quant oha relazione con gli uccelli in generale.
1897–1910. Vols. 1–14. [Cut of *Passer italicus*, with motto: Parvus sed omnino italicus.] *4to. col., tinted, pictured wrappers.* Bimonthly (double) numbers. Hon. Dir. Prof. Enrico Hillyer Giglioli and Count Prof. Tommaso Salvadori. Director Cav. Sigismondo Brogi, Siena. *Sienna.*
Parts designated 'Fasc.' on wrapper; 'N' on inner title-page. Suspended.
Anno I. Fasc. or Nos. 1–6, Jan.–Feb. 1897—Nov.–Dec. 1897. *184 pp. index.*
Anno II. Fasc. or Nos. 7–12, Jan.–Feb. 1898—Nov.–Dec. 1898. *152 pp. index.*
Anno III. Fasc. or Nos. 13/14–23/24, Jan.–Feb. 1899—Nov.–Dec. 1899. *188 pp. index.*
The Editor, Prof. Brogi, having died before the issue of Nos. 19/20 the conduct of Avicula was vested in the general 'Direzione'.
Anno IV. Fasc. or Nos. 25/26–35/36, Jan.–Feb. 1900—Nov.–Dec. 1900. *172 pp. index.*
Anno V. Fasc. or Nos. 37/38–47/48, Jan.–Feb. 1901—Nov.–Dec. 1901. *176 pp. index.*
Anno VI. Mar.–Apr. (51/52) is erroneously numbered as part of 'Anno. V'.
Anno VII. Fasc. or Nos. 61/62–71, Jan.–Feb. 1903—Nov.–Dec. 1903. *183 pp. index.*
Anno VIII. Fasc. or Nos. 73/74–83/84, Jan.–Feb. 1904—Nov.–Dec. 1904. *176 pp. index.*
Anno IX. Fasc. or Nos. 85/86–95/96, Jan.–Feb. 1905—Nov.–Dec. 1905. *168 pp. index.*
Anno X. Fasc. or Nos. 97/98–107/108, Jan.–Feb. 1906—Nov.–Dec. 1906. *148 pp. index.*
Anno XI. Fasc. or Nos. 109/110–119/120, Jan.–Feb. 1907—Nov.–Dec. 1907. *140 pp. index.*
Anno XII. Fasc. or Nos. 121/122–131/132, Jan.–Feb. 1908—Nov.–Dec. 1908. *126 pp. index.*
Double Fasc. or Nos. 129/132, Sept.–Dec. 1908.
Anno XIII. Fasc. or Nos. 133/134–143/144, Jan.–Feb. 1909—Nov.–Dec. 1909. *124 pp. index.*
Double Fasc. or Nos. 141/144, Sept.–Dec. 1909.
Anno XIV. Nos. 145–56, Jan. 1910–Dec. 1910. (Monthly.) *168 pp. index.* (All issued.)
The October number announced the suspension

← d'Auterache, C. 1778. A voyage to California, to observe the transit of Venus... with an historical description of the author's route through Mexico and the natural history of that province... 8vo. London.

of the Journal, which was probably due, in part at least, to the death of the editor, Prof. Giglioli.

Avicula was the earliest of the Italian scientific journals devoted to ornithology; and it had a useful career. In its pages are found much of the best work furnished by Italian naturalists; its editors, Giglioli, Salvadori, and Brogi constituting a trio well-known to the world of zoology.

L'AVICULTEUR.

1881–8. Published by M. Voitellier, *Nantes (Seine-et-Oise), France.* Weekly. *folio.* Each part (separate pagination) 4 pp. *illust. in text.* Except 1re Année, about 52 issues yearly. In detail:

1re Année. 1881. No. 1, Dec. 10–No. 4, Dec. 31. Four numbers in first volume. *illust.*

2e Année. 1882. No. 1, Jan. 7–No. 52, Dec. 30. *numerous illust.*

3e Année. 1884. No. 1, Jan. 5–No. 53, Dec. 27. *illust.*

4e Année. 1884. No. 1, Jan. 5–No. 53, Dec. 27. *illust.*

5e Année. 1885. No. 1, Jan. 3–No. 50, Dec. 26. *illust.*

6e Année. 1886. No. 1, Jan. 2–No. 52, Dec. 25. *illust.*

7e Année. 1887. No. 1, Jan. 1–No. 52, Dec. 31. *illust.*

8e Année. 1888. No. 1, Jan. 7–No. 52, Dec. 29. *illust.* (All issued?)

England and Germany are undoubtedly the leaders in European aviculture—foreign, domestic and 'farmyard'—and that is the reason, doubtless, why the corresponding French periodical literature is relatively so sparse. Of trade journals, *L'Aviculteur*, issued in newspaper form, is above the average and compares favourably with similar English publications. It is devoted chiefly to pigeon and poultry raising.

AVICULTOR. **1921**–*date.* *Mexico.*

AVICULTURAL MAGAZINE, THE. Being the Journal of the Aviculture Society for the study of Foreign and British Birds (later) in Freedom and in Captivity. Blk. and white and colored plates.

1894–*date.* Monthly. *8vo.* *Brighton, England*

First series in 8 vols. of 96 nos. with colored and other plates (1894 to 1902). In all 4 series, 1894–1931; and continuation. (First series, parts numbered consecutively.)

Vol. I. Nos. 1–12, Nov. 1894–Oct. 1895. Monthly. *132 pp. index.*

Vol. II. Nos. 13–24, Nov. 1895–Oct. 1896. *191+vii pp. index.*

The foregoing edited by C. S. Simpson, Secretary, and H. R. Fillmer, Treasurer, of the Aviculture Society.

Vol. III. Nos. 25–35, Nov. 1896–Oct. 1897. *209+xiv pp. index.*

The foregoing published by W. T. Moulton & Co., *Brighton.*

Vol. IV. Nos. 37–48, Nov. 1897–Oct. 1898. *212+xvi pp. index and several colored plates.*

Vol. V. Nos. 49–60, Nov. 1898–Oct. 1899. *195 pp. index.*

The last two vols. edited by the Hon. Secy. of The Society, H. R. Fillmer; published by Betts & Sons, *London.*

Vol. VI. No. 61–72, Nov. 1899–Oct. 1900. Renumbering of parts.

Vol. VII. Nos. 1–12, Nov. 1900–Oct. 1901. *234+vi pp. index.*

Vols. VI and VII were edited by O. E. Cressell and pub. by Betts & Sons.

New Series [Second Series].

Tinted wrapper (illustration, bird of paradise); sub-title—The Journal of the Avicultural Society. Title-page sub-title—The Journal of the Avicultural Society. Title-page sub-title (added). 'Study of Foreign and British Birds') in Freedom and Captivity. Edited by D. Seth-Smith. Pub. by R. H. Porter, *London.* Volumes in succeeding series are mostly in twelve monthly numbers.

Vol. I. Nos. 1–12, Nov. 1902–Oct. 1903. *431 pp. Many col. pl. index.*

Vol. II. Nos. 1–12, Nov. 1903–Oct. 1904. *380 pp. Many col. pl. index.*

Vol. III. Nos. 1–12, Nov. 1904–Oct. 1905. *394 pp. Many col. pl. index.*

Vol. IV. Nos. 1–12, Nov. 1905–Oct. 1906. *375 pp. Many col. pl. index.*

Vol. V. Nos. 1–12, Nov. 1906–Oct. 1907. *389 pp. Many col. pl. index and table of contents.*

Vol. VI. (Edited by David Seth-Smith and Arthur G. Butler.) Nos. 1–12, Nov. 1907–Oct. 1908. *359 pp. col. pl. index.*

Third Series.

Tinted, pictured (changed) wrapper (only name of Journal on wrapper title-page). Edited, Nov.–July, by Frank Finn; Aug.–Oct. J. Lewis Bonhote. Pub. by West Newman & Co., *London.*

Vol. I. Nos. 1–12, Nov. 1909–Oct. 1910. *374 pp. Many col. pl. index.*

Vol. II. Nos. 1–12, Nov. 1910–Oct. 1911. *394 pp. Index. col. pl.*

Vol. III. Nos. 1–12, Nov. 1911–Oct. 1912. *355 pp. col. pl. index.* (Vols. II and III edited entirely by J. Lewis Bonhote.)

Vol. IV. Nos. 1–12, Nov. 1912–Oct. 1913. *391 pp. Many black and col. pl. index.*

Vol. V. Nos. 1–12, Nov. 1913–Oct. 1914. *386 pp. Many black and col. pl. index.* Edited by Hubert D. Astley.

Vol. VI. Nos. 1–12, Nov. 1914–Oct. 1915. *396 pp. Many black and several col. pl. index.*

Vol. VII. Nos. 1–12, Nov. 1915–Oct. 1916. *356 pp. black and col. pl. index.*

Vol. VIII. Nos. 1–12, Nov. 1916–Oct. 1917. *364 pp. black and col. pl. index.*

Vol. IX. No. 1 and 12, Nov. 1917–Oct. 1918. *313 pp. illust. index.*

Editor: Dr. Graham Renshaw.

Vol. X. Nos. 1–14, Nov. 1918–Dec. 1919. *260+ix pp. illust. index.*

Vol. XI. Nos. 1–12, Jan. 1920–Dec. 1920. *214 pp. illust. index.*

Vol. XII. Nos. 1–12, Jan.–Dec. 1921. *188 pp. illust. index.*

Hon. Editors: D. Seth-Smith and R. I. Pocock.

Vol. XIII. No. 1→

This magazine is a scientific periodical of the greatest value not only to students of avian domestication but to ornithologists in general. It is well written (by numerous naturalists of note) and well edited by ornithologists of international repute. Finally, it is well printed. The illustrations, both black and colored, are of the best, although the latter were (very properly) omitted during the World War. It is appropriate that the premier magazine on general aviculture should be published in England, the home of domestic faunaculture.

AVICULTURAL SOCIETY. *London.*

1925. Aviculture, a treatise on the management of foreign and British birds in captivity, published by the Avicultural society. *8vo. pp. 2+326+7+16. 27 pl., 10 col. index. index to Latin names.* *Hertford.*

This useful volume is a 'practical manual of general utility on the keeping and rearing of birds. Published under the auspices of the Avicultural Society of London and *La Société Nationale d'Acclimatation de France*, by a Mixed Committee, and the Editors of the *Avicultural Magazine* and of *l'Oiseau*'.

AVICULTURAL SOCIETY OF CALIFORNIA. Bird news.

1909. Nos. 1–6, January–December. *8vo.* *San Francisco.*

Devoted to the interests of the bird fancier. Edited by F. W. D'Evelyn. W. W. Cooley, business manager. With pictured title-page.
Vol. I. Nos. 1–6, Jan.–Dec. 1909. *64 pp.* All issued. F. L. Burns gives the date 1901; the *Auk*, 1909. (Wanting.)

AVICULTURAL SOCIETY OF GREAT BRITAIN. *See* AVICULTURAL MAGAZINE.

AVICULTURE. *See* AVICULTURAL SOCIETY, LONDON, 1925.

AVICULTURE.

1929. Series II, vol. I– . Monthly. Pub. by the Avicultural Soc. of America. First two nos. appeared as The Avicultural Magazine. *4to.* *New York and Chicago.*

A flourishing and useful magazine devoted to the care and culture of bird life—foreign imports in particular. It is illustrated mostly by colored plates.

L'AVICULTURE PRATIQUE. Revue Bimensuelle Illustrée.

1912–14. Publiée avec le concours de Professeurs et d'Aviculteurs et avec le Patronage de Sociétés d'Aviculture. Organe official du Houdan-Faverolles-Club, ou Pavilly-Club, etc. Directeur Leon Lefèvre. *2 vols. and 4 monthly nos. 8vo. illust. Pictured wrappers.* Suspended (?). *Paris.*

1. Année. No. 1, July 15, 1912; and thereafter an issue every two weeks until No. 12, Dec. 30, 1912. *139 pp. black illust. index.*
2. Année. Nos. 13–14, Jan. 1913; and thereafter a double number every month until Nos. 23, 24, June; then (single) No. 25, July; and one number every month until No. 30, Dec. 1913. *76 pp.* Jan.–Aug.; thereafter each no. paged separately. *illust. T. of c.* Sub-title changed to 'Organ Mensuel d'Aviculture, Élevage', etc.
3. Année. No. 31, Jan. 1914; No. 32, Feb. 1914; No. 33, Mar. 1914; No. 34, Apr. 1914 (all issued?).
Fondateur: Leon Lefèvre. Chief Editor: V. Duperrey.
Although at first devoted entirely to the culture of domestic birds this journal finally included barn-yard animals of all sorts. As such, it is an interesting periodical and gives a fair account of 'basse-cour' life in France during the years 1912–14.

AVIFAUNA, THE.

1895–7. Only three nos. were issued. Nos. 1 and 2 were published by W. H. Hoffman, *Los Angeles, Cal.*, No. 3, at *Santa Barbara, Cal.* Vol. I. No. 1, Sept. 1895; No. 2, Oct. 1895; No. 3, Sept. 1897. *8vo. 48 pp. illust. col. pictured wrappers.*

It contains several ornithological papers of interest to science. No. 2 (*4to. 17–32 pp. T. of c.*) has an instructive (illustrated) paper on the California Condor, by the Editor; contributions also from J. Grinnell, Lee Chambers, H. A. Gaylord, and others.

AVIS, RICHARD, *pseud.*

1870. The canary; its history, varieties, management and breeding. *8vo. pp. 48. front. (col.). T. of c.* *London.*

A little treatise on the breeding, rearing, and management of Canaries in health and sickness.

AYER, EDWARD E. Catalogue of the ornithological library, Field Museum of Natural History. *See* ZIMMER, JOHN TODD.

AZARA, *Don* FELIX DE [1746–1811].

1801. Essais sur l'Histoire nat. des Quadrupèdes du Paraguay, etc. *2 vols. 8vo.* *Paris.*

One of the most important early treatises on South American zoology by a famous naturalist. There were several editions and translations of this author's works in Spanish, French, German, and English, most of which are in the McGill libraries.

1802–5. Apuntamientos para la Historia Natural De Los Páraxos del Paragüay, etc. *3 vols.* *Madrid.*

1809. Voyages dans l'Amérique Méridionale, etc. *4 vols. text and 2 vols. plates.* *Paris.*

1810. Reise nach Sued Amerika, etc. *8vo.* *Berlin.*

1838. The Nat. Hist. of the Quadrupeds of Paraguay, etc. Vol. I (all pub.). *8vo.* *Edinburgh.*

B**.**

1808. Aviceptologie Française. *Paris.*

BABAULT, GUY.

1916–23. Voyage de Guy Babault dans l'Afrique orientale anglaise. Résultats scientifiques. Vols. [1–13]. *sq. 4to. illust. pl.* *Paris.*

Of the vertebrates the birds (vol. XI) are by A. Ménégaux; mammals by Max Kollman.

1920–4. Mission Guy Babault dans les provinces centrales de l'Inde dans la région occidentale de l'Himalaya et Ceylen, **1914.** Résultats scientifiques. *5 vols. 4to. illust. pl. maps.* *Paris.*

CONTENTS. Vol. [1]. Oiseaux par Guy Babault. [4]. Reptiles et Batraciens par Paul Chabanaud.

The first part contains the ecological description of the stations. The second part consists of an account of the birds met with on the elevated chain of mountains between the Punjab and the Indus, extending to the sources of the Indus, up to the borders of Kashmir.

1921. Recherches zoologiques dans . . . l'Inde, etc.

1922. Recherches zoologiques dans les provinces centrales de l'Inde et dans les régions occidentales de l'Himalaya. Ouvrage illustré de 80 reproductions photographiques hors texte et de quatre cartes. *25½ cm. 2 pp. l., iii, 238 pp., 1 l. pl. 4 maps (2 fold.).* *Paris.*

This volume contains the personal narrative and incidents of the expedition known as the *Mission Guy Babault*. The ornithological results are published separately.

1923. *See* MÉNÉGAUX, HENRI AUGUSTE.

1924. Voyage de Guy Babault en Tunisie. Résultats scientifiques. Oiseaux par Louis Lavauden. *folio. 279 pp. pl. maps.* *Paris.*

The plates by N. Boudarel are worthy of mention, especially the last one of the sand-grouse (*Pterocles coronatus*).

BABCOCK, ERNEST BROWN [1877–] and **CLAUSEN,** ROY ELWOOD.

1918. Genetics in relation to agriculture. *8vo. pp. xx+675. front. (col.). 3 pl. (col.). 239 figs. T. of c. glossary. bibliogr. index.* *New York.*

An adequate presentation in a single text of the facts and principles of genetics and their practical applications. References to birds are numerous under such headings as Hybrid birds, sex-determination in, sex-linked inheritance, song in male, and sterility in hybrids, with one coloured plate. First edition.

→ Azara. F. 1817. Viaggi nell'America meridionale

Milano, ~~1817~~. V Vol in tomo in-16. ~~Cart orig~~.

[**BAILEY,** *Mrs.* F. A. (MERRIAM) (*contd.*)]

1918. Wild animals of Glacier national park. The mammals, . . . by V. Bailey . . . The birds, by F. A. Bailey. *See* BAILEY, V. and BAILEY, F. A. (*born* Merriam).

1921. Handbook of birds of the Western United States. Including the Great Plains, Great Basin, Pacific Slope, and Lower Rio Grande Valley. With thirty-three full-page plates by Louis Agassiz Fuertes, and over six hundred cuts in the text. *rev. ed. 8vo. pp. li+(1)+590. front. 33 pl. 1 map. 3 diagr. 601 figs. T. of c. append. addend. index.* *Boston.*

A most carefully prepared 'Handbook' with short accounts of each species, keys for easily distinguishing them, and addenda giving changes in nomenclature brought up to date.

1928. Birds of New Mexico; with contributions by W. W. Cooke. Illustrated with colored plates by Allan Brooks, plates and text figures by the late Louis Agassiz Fuertes. Based mainly on field work of the Bureau of biological survey, U.S. Dept. of agriculture. *8vo. pp. xxiv+807. front. (col.). 78 pl. (24 col. 1 map). 136 figs. 62 maps (2 diagr.). T. of c. bibliogr.* *Washington, D.C.*

The first comprehensive account of the avifauna of American South-west. Various plumages of species are described, followed in most cases by a paragraph on 'comparisons', contrasting the species with its nearest allies particularly as seen in the field. Following this comes the range of the bird with a summary of 'State Records' covering its distribution in New Mexico. Other paragraphs cover nest, eggs, and food, as well as general habits.

BAILEY, H. B.

1881. 'Forest and stream' bird notes; an index and summary of all the ornithological matter contained in *Forest and Stream,* vols. 1–12. *8vo. pp. iv+195. index.* *New York.*

A complete index to the many valuable notes scattered through the files of the magazine as well as a digest of each note or article, the reader having at hand much more than a simple index, thus making it often unnecessary to refer to the original volume.

BAILEY, HAROLD HARRIS [1879–].

1913. The birds of Virginia. With fourteen full page colored plates, one map, and one hundred and eight half-tones taken from nature. Treating one hundred and eighty-five species and subspecies; all the birds that breed within the state. *8vo. pp. xxiii+(1)+362. front. (col.). 13 pl. (col.). 185 half-tones. 1 map (fold.). index.* *Lynchburg, Va.*

1925. The birds of Florida; a popular and scientific account of the 425 species and subspecies of birds that are now, and that have been found within the state and its adjacent waters; with special reference to their relation to agriculture; illustrated with 76 full page four-color plates,—figuring over 480 birds, by Geo. M. Sutton; and with an outline map of the state showing areas; and a topographical drawing of a bird . . . Limited ed. *4to. pp. xxi+(1)+146. 76 pl. (col.). 1 diagr. 1 map (fold.). index.* *Baltimore, Md.*

BAILEY, LORING WOART [1839–1911].

1887. Elementary natural history; introd. to the study of minerals, plants and animals, with special reference to those of New Brunswick. *8vo. pp. vi+94. 4 pl. T. of c.* *Saint John, N.B.*

An elementary account of the position birds occupy in the animal kingdom, plate 4 depicting a few types of certain families of birds.

BAILEY, VERNON [1864–].

1913. Life zones and crop zones of New Mexico. *Washington.*

A valuable contribution to local economic zoogeography.

******** and **BAILEY,** FLORENCE MERRIAM.

1918. Wild animals of Glacier national park. The mammals, with notes on physiography and life zones. The birds, by Florence Merriam Bailey. *8vo. pp. 210. 37 pl. (1 map fold. col.). 94 figs. T. of c. index.* *Washington.*

1928. Animal life of the Carlsbad Cavern. *8vo. pp. xiii+(1)+195. front. 67 figs. T. of c. index.* *Baltimore.*

A monograph (American Soc. of Mammalogists) of the most extensive and spectacular cavern yet discovered in America, situated in the Pecos River Valley of south-eastern New Mexico. The birds of the region are described in chapter VI, pp. 130–62, accompanied by eight illustrations.

1930. Animal Life of Yellowstone Park. *8vo. pp. 12+232. illust. index.* *Springfield, Ill.*

A reliable and well-written account of the animals (including fishes, reptiles, and amphibia) in a specialized region of the Middle West of North America. The writer is Chief Field Naturalist of the U.S. Biological Survey.

BAILEY MUSEUM AND LIBRARY OF NATURAL HISTORY. *Newport, News., Va.*

1920–*date.* Bulletin.

BAILLIE-GROHMAN, F. **1904.** *See* EDWARD, of Norwich.

BAILLIE-GROHMAN, WM. A. **1904.** *See* EDWARD, of Norwich.

BAILLY, JEAN BAPTISTE [1822–].

1853–5. Ornithologie de la Savoie, etc. *4 vols. and atlas. 8vo.* *Paris.*

BAILY, WILLIAM L.

1869. Our own birds; a familiar natural history of the birds of the United States. Rev. and ed. by E. D. Cope. *8vo. pp. x+11–265. front. 9 pl. 55 figs. (1 diagr.). T. of c. index.* *Philadelphia.*

A popular account of the birds of the United States, intended principally for youthful readers.

1874. Our own birds; a familiar natural history of the birds of the United States. Rev. and ed. by Edward D. Cope. *8vo. pp. x+11–265. front. 9 pl. 55 figs. (1 diagr.). T. of c. index.* *Philadelphia.*

1874. Our own birds, and Trees, plants and flowers. *2 vols. in 1.* [*Philadelphia.*]

1875. Our own birds. A familiar natural history of the birds of the United States. Revised and edited by Edward D. Cope. *8vo. pp. x+11–265. front. 9 pl. 50 figs. T. of c. index.* *Philadelphia.*

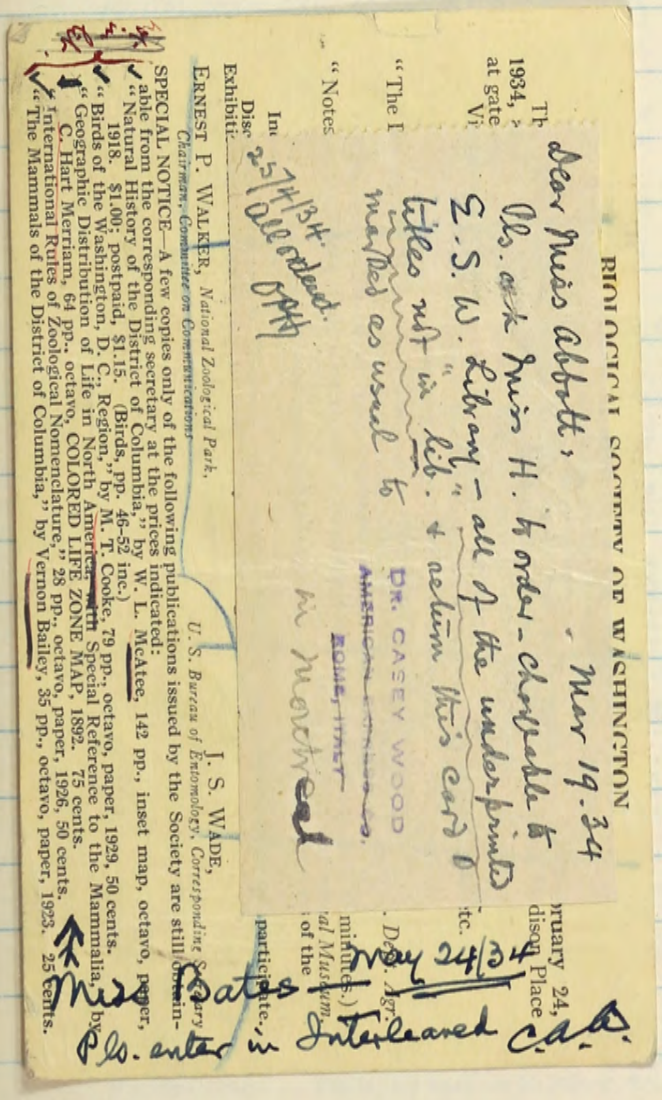
A reprint, with slightly altered title, of the edition of 1874.

?1876. The Birds of America: a familiar Natural History, etc. *8vo.* *London.*

An English edition of this familiar work.

→ 1917. Handbook of Birds of Western United States. 2nd. ed. rev. pp. 570.

+ Bailey, Vernon. 1923 The Mammals of the district of Columbia
35/pp. 1923.



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J. S. WADE,
U. S. Bureau of Entomology, Correspondent & Secretary

ERNEST P. WALKER, National Zoological Park,
Chairman, Committee on Communications

SPECIAL NOTICE—A few copies only of the following publications issued by the Society are still obtain-
able from the corresponding secretary at the prices indicated:
"Natural History of the District of Columbia," by W. L. McAtee, 142 pp., inset map, octavo, paper,
1918. $1.00; postpaid, $1.15. (Birds, pp. 46-52 inc.)
"Birds of the Washington, D. C., Region," by M. T. Cooke, 79 pp., octavo, paper, 1929, 50 cents.
"Geographic Distribution of Life in North America with Special Reference to the Mammalia," by
C. Hart Merriam, 64 pp., octavo, COLORED LIFE ZONE MAP, 1892. 75 cents.
"International Rules of Zoological Nomenclature," 28 pp., octavo, paper, 1926. 50 cents.
"The Mammals of the District of Columbia," by Vernon Bailey, 35 pp., octavo, paper, 1923. 25 cents.

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1854. On the serpents of New York. 28 pp., 2 plo. Albany.

→ 1863. Student's Natural history. pp. 613. illus. map.

BAIN, FRANCIS.

1890. The natural history of Prince Edward Island. Authorized for the use of schools by the Board of education. *16mo. pp. viii+9–123. front. 45 figs. T. of c. glossary.* *Charlottetown, P.E.I.*

Intended as an introduction to the study of the natural history of Prince Edward Island, for the use of Primary Schools. Birds are discussed on pp. 108–17, with one illustration.

BAIRD, SPENCER FULLERTON [1823–87].

1852. Quadrupeds and birds by S. F. Baird. Reptiles by S. F. Baird and C. F. Girard. *8vo. pp.* [*75*]. Appendix C. Zoology of U.S.—Engineers, Corps of. Expedition to the valley of the Great Salt Lake of Utah, pp. 307–79. *Philadelphia.*

**** and **STANSBURY,** HOWARD.

1852. Exploration and Survey of the Valley of the Great Salt Lake of Utah. *8vo. Philadelphia.*

**** and **GIRARD,** C. F.

1852. An expedition to the Valley of the Great Salt Lake, etc. *8vo.*

This is really an account of the reptiles of Utah. *See also* STANSBURY, H.

1853. *See* UNITED STATES.

1855–9. *See* UNITED STATES. *Pacific Rd. Survey.*

1857–9. Mammals of North America. *4to. pp. 34+764+55. 3 pts. 87 col. pl. Philadelphia.*

This important and well-known treatise is a reprint of portions of the Reports of the Pacific Railway and Mexican Boundary Survey Expedition.

[**1858**]. Catalogue of North American birds chiefly in the museum of the Smithsonian Institution. *folio. pp. 19. blue paper. no t.-p.*

According to Zimmer (*Ayer Catalogue*, p. 32) in its folio form it consists of 'a simple list of 738 names in Latin and English, with serial numbers, and without any indication of the distribution of species as given in the original; it was designed, according to the introduction, to facilitate the labelling of specimens and to serve the purpose of a check-list. According to Coues, some copies were issued, printed on but one side of the paper, for further use in labelling specimens'. The present copy is from the P. L. Sclater library.

1858. Catalogue of North American birds, chiefly in the museum of the Smithsonian institution. *4to. pp.* (*2*)+*xvii–lvi*+(*2*). *Washington.*

Separate reissue of the author's main work. Besides the list of 738 species, with habitats, these sheets contain a table of the higher groups. The species being all numbered the brochure was much in use for several years as a convenient reference.

1858. Catalogue of North American birds, chiefly in the museum of the Smithsonian institution. *folio. pp.* (*2*)+*xvii–lvi*+*25 leaves* (*blank*). *Washington.*

A portion of the report on North American Birds in vol. IX of the *Reports of the Pacific Railroad Survey*, and here published as a separate paper by the Institution. An abridged octavo edition was issued in 1859 (q.v.).

1858. Reports of explorations and surveys . . . for a railroad from the Mississippi River to the Pacific Ocean . . . Birds; by Spencer F. Baird, &c. *See* U.S. PACIFIC RAILROAD SURVEYS.

[**1859**]. Birds of the boundary. With notes by the naturalists of the Survey. *4to. pp.* (*2*)+*3–32. 25 pl.* (*col.*). *index.* [*Washington.*]

The whole work is in 2 vols., the present portion being vol. II, pt. II, relating to the birds. The article is merely a list of the specimens collected by the Commission, the text being comparatively unimportant (the species being worked up elsewhere), but it is accompanied by 25 beautiful colored plates, wanting in the present copy.

1859. Catalogue of North American birds, chiefly in the museum of the Smithsonian institution. [*First octavo edition.*] *pp.* (*2*)+*19*+(*3*). *index.* *Washington.*

A check-list of 738 species and subspecies, with scientific and vernacular names, reprinted with some changes from the quarto, forming a portion of the report on North American Birds, in vol. IX of the *Reports of the Pacific Railroad Survey*, and published as a separate paper by the Institution in October 1858 (q.v.).

1859. Mammals of North America; the descriptions of species based chiefly on the collections in the museum of the Smithsonian Institution. Phila. *3 pts. in 1 vol. folio. pl.* *Washington, D.C.*

Pt. 1 is a reprint of the 'Report on mammals', presented to the Dept. of War, and pub. in 1857, as one of the series of *Reports of explorations and surveys for a railroad route to the Pacific Ocean.* Pt. 2 is a reprint of the special 'Report on mammals' of the U.S. and Mexican boundary survey. Pt. 3 consists of plates, comprising those in the two preceding Reports and a few additional ones.

**** and **EMORY,** *Major* WILLIAM H.

1859. Report on the U.S. and Mexican Boundary Survey, etc. Binder's title, 'Zoology of the Boundary'. *Washington.*

**** with **CASSIN,** J. and **LAWRENCE,** G. N.

1860. Birds of North America; the descriptions of species based chiefly on the collections in the museum of the Smithsonian Institution. Atlas of one hundred plates. *2 vols. 4to.* Vol. 1, *pp.* (*4*)+*lvi*+*1005. T. of c. 3 append. bibliogr. 2 indexes.* (Vol. 2, wanting.) *Philadelphia.*

The main body of text (pp. 1–1005) is identical with the same pages in vol. IX of the U.S. Pacific Railroad Surveys, *Reports of Explorations*, etc. (q.v.), and pp. i–vi represent pp. xi–xvi of the same, reset and dated 'October 20, 1858', instead of 'October 20, 1853'. Pp. vii–xv+1, containing the explanation of plates and systematic list of illustrations, are new. In the present copy the plates forming vol. 2 are wanting.
Under the present title, the work was reissued in 1870 (q.v.) with some changes.

1863. List of the Described Birds of Mexico—not in the Smithsonian. *8vo pamphlet.*

Author's separate.

1864–72. Smithsonian miscellaneous collections, 181. Review of American birds in the museum of the Smithsonian institution. Part 1. *8vo. pp. vi+478. 57 figs. T. of c. index.* *Washington.*

The final form of this paper, which was originally issued in sheets, as fast as it was printed, distributed to various ornithologists for the purpose of eliciting criticisms and suggestions. Pagination extended only to p. 450, and the title-page was slightly different from the present one. Later, for the present edition, the title-page was changed, the preliminary advertisement altered, an introduction written, the table of contents completed (to include the Vireonidæ, Ampelidæ, and Laniidæ), a list of species and index added on pp. 450–78, and the work was reissued in one volume. The final signature is dated January 1873, although the title-page cites 1864–72 only.

[**1866**]. Arrangement of families of Birds. [Adapted provisionally by the Smithsonian Institution.] *8vo. pp. 8. no t.-p.*

A pamphlet stating that the classification of birds presented is based essentially upon that of Prof. Lilljeborg, of Upsala (published in the *Proceedings of the Zoological Society of London* for January 1866), and has been adopted provisionally in the arrangement of the birds in the museum of the Smithsonian Institution.

1866. The distribution and migrations of North American birds. *8vo. pp. 33.*

An abstract of a Memoir presented to the National Academy of Sciences, January 1865. Author's separate from the *American Journal of Science and Arts*, vol. XLI, January and May 1866.

[**BAIRD,** S. F. (*contd.*)]

1870. Geological Survey of California. Vol. I. Land birds. Edited by S. F. Baird from the manuscript and notes of J. G. Cooper. *See* COOPER, J. G.

1870. The Birds of North America, descriptions of species based chiefly on the collections in the museum of the Smithsonian Institution. By Spencer F. Baird, with the co-operation of John Cassin, and George N. Lawrence. With an atlas of one hundred plates. *2 vols. 4to.* Vol. 1, *pp. (2)+vii+(1)+xvii–lvi+1000. T. of c. 3 append. bibliogr. 2 indexes.* Vol. 2, *pp. (2)+vii+(1). 100 pl. (col.).* *Salem.*

A later edition of the work of the same title published in 1860 (q.v.), with certain alterations. The title is changed; the prefaces of text and atlas are reset and differently paged, with that of the text occupying fewer pages; the table of contents of the text is slightly altered to accord with the changed pagination; the explanation of plates is reset on fewer pages and omitted from the volume of text, being found only in the atlas; the systematic list of illustrations is entirely omitted; most of the plates are retouched and renumbered or relettered, and in many cases are somewhat different in coloration from the originals. The general descriptive text appears to be the same in both editions.

******** and **others.**

1874. A history of North American birds. Land birds. *3 vols. 4to. pl. and 593 woodcuts.* Vol. 1, *pp. xxviii+596+vi. 26 pl. T. of c. index.* Vol. 2, *pp. (6)+590+vi. 30 pl. T. of c. index.* Vol. 3, *pp. (6)+560+xxviii. 8 pl. T. of c. append. glossary. 3 indexes.* *Boston.*

This is the first edition with uncolored plates; an authoritative work dealing with the life-histories and habits of the land birds of North America north of Mexico. The work was issued also with colored plates. A companion work in two volumes by the same authors is the *Water Birds of North America*, 1884 (q.v.), issued as *Memoirs of the Museum of Comparative Zoology at Harvard College*, vol. XII. In the present work Gill is responsible for the portion of the introduction (pp. xi-xiv, vol. I) relating to birds as distinguished from other vertebrates, and Coues prepared the tables of the orders and families (pp. xiv–xxviii, vol. I) and the glossary (pp. 535–60, vol. III).

******** with **BREWER, RIDGWAY, COUES,** and **GILL.**

1875. A history of North American Birds. Land Birds. Illustrated by 64 Chromo-Lithographic Plates and 593 Woodcuts. *3 vols. 4to.* Vol. I, *pp. xxviii+596+vi. vignette. 26 pl. (col.). 184 figs. T. of c. index.* Vol. II, *pp. (6)+590+vi. vignette. 30 pl. (col.). 170 figs. T. of c. index.* Vol. III, *pp. (6)+560+(2)+xxviii. vignette. 8 pl. (col.). 232 figs. T. of c. append. glossary. 3 indexes.* *Boston.*

Similar in every respect to the edition of 1874 (q.v.) except that *the plates are colored* instead of plain. Copies of this second edition exist which contain 36 additional color plates (unnumbered) of birds drawn by Robert Ridgway not mentioned in the titles.

1878. American ornithology, &c., by A. Wilson and C. L. Bonaparte. Pop. ed. [containing a catalogue of North American birds by Baird]. *See* WILSON, A. and BONAPARTE, C. L.

******** with **BREWER** and **RIDGWAY.**

1884. The Water Birds of North America. [Vol. XII. Memoirs Mus. Comp. Zoology, Cambridge, Mass. Harvard Univ.] *2 vols. 4to.* Issued in continuation of the Publications of the Geological Survey of California. Vol. 1, *pp. xi+(1)+537. 211 figs. T. of c.* Vol. 2, *pp. (6)+552. 282 figs. T. of c. 2 indexes.* *Boston.*

The present work is, in reality, part of the same treatise as *A History of North American Birds—Land Birds*, 1874 (q.v.), by the same authors, the two titles together forming the complete set. An edition was issued, also, with colored figures. The volumes were to have been published by the Geological Survey of California as a complement to *Ornithology, vol. I, Land Birds*, by J. G. Cooper, 1870 (q.v.), in return for the use of the illustrations of Cooper's work for the volumes on the Land Birds by the present authors—hence the reference in the title.

BAIRD, WILLIAM [1803–72].

1860. A dictionary of natural history. Map and numerous illustrations. *8vo. pp. (2)+v–xvi+613. front. (map col. fold.). 216 figs. (44 birds). T. of c. glossary. index.* *London.*

A succinct account of the most interesting objects in the Animal, Vegetable, and Mineral Kingdoms, with an explanation of various terms used by authors in treating of them. The map shows the distribution of animals over the globe.

BAIRNSFATHER, P. R.

1914. Sport and nature in the Himalayas; ed. by F. G. Aflalo. *8vo. illust. pp. xv+(1)+137. front. (portr.). 6 figs. T. of c. index.* *London.*

Little memories—as the author calls them—of outdoor life in the Himalayas, some chapters of which first appeared elsewhere.

BAJON [?1720–90].

1777–8. Mémoires pour servir à l'histoire de Cayenne, et de la Guiane Françoise, etc. *2 vols. illust.* *Paris.*

An early account of the natural history of French Guiana.

BAKER, EDWARD CHARLES STUART.

1900–1. The Birds of Cachar. *pp. 1–50, 1–35, 1–26, 339–71, 539–67, 222–33, 390–405, 486–510, 399–405, 564–70. 9 col. pl* (originals painted by the author).

Although this specially bound book is made up of extracts from the *Journal of the Bombay Natural History Society* it is given a separate, distinctive title-page, and forms, *inter alia*, a concise and excellent account of many Indian hill species in which a large number of Burmese forms occur. The present volume is a presentation copy to the Compiler of this Catalogue.

1908. The Indian ducks and their allies. *large 8vo. pp. xii+292. 30 pl. (col.). 1 pl. (title). T. of c. index.* *London.*

This work consists of a series of articles contributed to the *Journal of the Bombay Natural History Society*, which are here reprinted with additions and corrections to bring the list up to date. The work was afterwards incorporated as vol. I of *The Game-Birds of India, Burma and Ceylon*, 1921 (q.v.), by the same author, with the addition of four extra plates, and alterations and additions to others. The text also was revised to bring the work up to date.

1913. Indian pigeons and doves. With 27 col. pl. *folio. pp. xv+(1)+260. front. (col.). 26 pl. (col.). T. of c. bibliogr. index.* *London.*

Fifty-one species and subspecies are dealt with in this semi-popular work. It is the first book to introduce the trinominal system into India. Following the synonymy of each species are the vernacular names, if any, with a description of adults and young, distribution, nidification, and general account of habits, etc., forming a companion volume to the author's *Game-Birds of India, Burma and Ceylon*, 1921 (q.v.). Several of the original colored drawings by Grönvold, made for this treatise, as well as others by the author are in the E.S.W. Library.

1921. The game-birds of India, Burma and Ceylon. *2 vols. 8vo.* Vol. 1, *pp. xvi+340. 30 pl. (col.). 4 pl. (1 title). bibliogr. index.* Vol. 2, *pp. xvi+328. 19 pl. (col.). 7 pl. (1 title). bibliogr. index.* *London.*

Based on articles in the *Journal of the Bombay Natural History Society* from 1896 onward, revised and corrected. Vol. I, with modifications, appeared as a separate work in 1908 under the title *The Indian Ducks and their Allies* (q.v.).

1922–30. Birds of British India, including Ceylon and Burma. Forming part of the Fauna of British India. Published under the authority of the Secretary of State for India. Birds, vols. 1–6. Second edition. Vol. 1, *pp. xxiii+(1)+479. front. (col.). 7 pl. (col.). 101 figs. (1 diagr.). 2 indexes.*

← Bajer, J. J. 1708. Oryktographia Norica, sive rerum fossilium et ad mineralia regnum pertinentium in territorio Norimbergensi succincta descriptio. front., fold. plo. Norimberg.

→ 1905. A Hdbk of North American Birds. Land Birds. 64 col. pl. 34 full page plates. new edition.

→ Balducci, E. 1908. Morfologia dello sterno degli Uccelli con ricerche originali. 84p., 28plo.

→ Baker, E.C.S. 1932. Nidification of Birds of the Indian Empire. 800. ill 4 vols. (£5) Taylor + Francis. Ordered Oct/32.

→ Ball, S.C. 1933. Jungle Fowls from the Pacific Islands. Honolulu.

Vol. 2, *pp. xxiii+(1)+561. front. (col.). 7 pl. (col.). 86 figs. 2 indexes.* *London.*

This edition is to replace the out-of-date one by Oates and Blanford issued in 1889–98 (q.v.). The general plan of the work is much the same as the previous one except that modern nomenclature has been adopted, with other changes necessary to bring it up to date. Text figures and colored plates have been added. The complete ornithological series is planned to occupy six volumes.

[1923]. A hand-list of genera and species of birds of the Indian empire. Author's repr. from the *Journal of the Bombay Nat. Hist. Soc.* together with a foreword, addenda, and corrigenda. *8vo. pp. (2)+ix+(1)+240.*

This catalogue is reprinted (with addenda) from the *Journal of the Bombay Natural History Society*. The scientific and trivial name of each bird is given, followed by the type, locality, and the distribution of the species.

1928. Mishi the Man-Eater, etc.

A popular account of a man-eating tiger.

BAKER, FRANK COLLINS [1867–].

1895. Naturalist in Mexico, being a Visit to Cuba, etc. *8vo.* *Chicago.*

BAKER, JOHN RANDAL.

1926. Sex in man and animals. With a preface by Julian S. Huxley. *8vo. pp. xvi+175. 22 figs. bibliogr. index.* *London.*

Written in the simplest language and presented in the most straightforward way, thus making the subject intelligent for the general public.

BAKER, *Sir* SAMUEL W.

1890. Wild Beasts and their Ways: Reminiscences of Europe, Asia, Africa and America. *2 vols. 8vo. illust.* Vol. I, *pp. 14+419.* Vol. II, *pp. 8+379.* *London.*

An interesting account of many wild animals by a naturalist-hunter who was at least ashamed of the needless slaughter and amazing cruelties of many 'sportsmen' whose main object seems to have been the murder of defenceless creatures to satisfy a savage lust for killing.

BAKER, T. BARWICK LLOYD.

1835. An ornithological index, arranged according to the Synopsis Avium of N. A. Vigors. *8vo. pp. 8+187.* *London.*

This rather rare treatise is a fundamental work and ought to be of some value to the research student.

BALBIANI, ÉDOUARD GÉRARD [1823–99].

1879. Leçons sur la génération des vertébrés. *8vo. pp. 6+280. 6 pl. illust.* (Cours d'embryogénie comparée du Collège de France.) *Paris.*

BALDAMUS, AUGUST KARL EDUARD [1812–93].

See NAUMANN, JOHANN ANDREAS.

1851–8. *See* NAUMANNIA.

1876. Vogel-Märchen. *pp. 16+136. illust.* *Dresden.*

Fairy tales about birds.

1880. Illustriertes Handbuch der Federviehzucht. 2te Aufl. *8vo. vol. 1, pts. 1–5 in 1. 50 figs. in text.* *Dresden.*

The first volume, second edition, of a treatise on the culture of caged birds and farmyard fowls; the projected second volume not seen.

1882. Das Hausgeflügel; ein praktischer Rathgeber für Landwirthe und Geflügelhalter überhaupt. *8vo. pp. 7+183. 33 text-figs. T. of c.* *Dresden.*

A useful manual on farmyard fowls, with chapters on their culture and care in health and disease.

1892. Das Leben der europäischen Kuckucke, nebst Beiträgen zur Lebenskunde der übrigen parasitischen Kuckucke und Stärlinge. *8vo. pp. 8+224. 8 col. pl. T. of c.* *Berlin.*

An important contribution to the study of habits of the European Cuckoo and other parasitic birds. The copy in hand is from the Cabanis-Reichenow collection.

1908. Illustriertes Handbuch der Federviehzucht. 4te. Aufl bearbeitet von Alfred Beeck. *2 vols. 8vo. illust. portr. pl.* *Berlin.*

CONTENTS. Vol. 1. Allgemeines Hühnervögel, Wirtschaftsgeflügelzucht. 2. Tauben und Wassergeflügel.

BALDWIN, JOHN HENRY.

1877. The Large and Small Game of Bengal and the North-Western Provinces of India. *8vo. pp. 24+380. 2 pl. illust. text.* *London.*

In the name of sport Capt. Baldwin has written a very good (scientific and popular) account of many of the Indian vertebrates, especially of the mammals.

BALDWIN, S. PRENTISS.

1924. Typed letter to members of the Inland Bird Banding Association. *4to. pp. 3.* *Cleveland, O.*

BALFOUR, FRANCIS MAITLAND [1851–82].

1885. A treatise on comparative embryology. *Second edition.* Reprinted without alteration from the first edition. *2 vols. 8vo.* Vol. 1, *pp. xi+(1)+591+(1)+xxiii. 275 figs. T. of c. index. bibliogr.* Vol. II, *pp. xi+(1)+792+xxiv. 429 figs. T. of c. index. bibliogr.* *London.*

A reprint of the first edition (1880–1). Birds are treated in chapters I–III, vol. 1, and in chapter VIII, vol. 2. Copious bibliographies accompany the text in all cases.

1885. The works of Francis Maitland Balfour . . . Ed. by M. Foster . . . and Adam Sedgwick. *4 vols. 8vo.* Vol. I, *pp. vii+922.* Vol. II, *pp. xi+(1)+591+xxiii. 275 figs.* Vol. III, *pp. xi+(1)+792+xxiv. 429 figs.* Vol. IV, *pp. lx. 53 pl.* *London.*

The Memorial Edition of the author's works, vol. I of which contains 'Separate Memoirs', vols. II–III. 'A treatise on Comparative Embryology', which had already appeared in 1880–1 in two volumes under the same title, and as a reprint, again, in 1885 (q.v.). Vol. IV contains both the plain and colored plates, 53 in all.

BALFOUR, HENRY [1863–]. *Editor. See* OGILVIE, F. M., 1920.

BALL, ALICE ELIZA [1867–].

1923. Bird biographies; illustrated by Robert Bruce Horsfall . . . *8vo. pp. xvi+(6)+295. 56 pl. (col.). T. of c. index.* *New York.*

An introduction for beginners to 150 common land birds of the eastern United States.

1924. Bird biographies. Second printing. *New York.*

BALL, JOHN [1818–89].

1878. Journal of a tour in Marocco and the Great Atlas, &c. *See* HOOKER, *Sir* J. D.

1887. Notes of a naturalist in South America. *8vo. pp. xiii+(1)+416. 1 map (col. fold.). T. of c. 2 append. index.* *London.*

The results of a five months' tour round the South American continent. Many references to birds.

BALL, VALENTINE [1843–95].

1884. Report on the Museums of America and Canada. *8vo.* *Montreal.*

BALLET, JULES.

1890–1. La Guadeloupe, etc. *4 vols. 8vo.* *Basse-Terre.*

A contribution to the natural history of the French West Indies.

1894–1902. La Guadeloupe. Renseignements . . . faune, etc. *3 vols. in 5.* *Basse-Terre.*

A second edition.

BALSS, HEINRICH [1886–].

1928. Albertus Magnus als Zoologe. *8vo. pp. 8+146. illust. portr.* *München.*

Reprint from *Münchener Beiträge zur Geschichte und Literatur der Naturwissenschaften und Medizin,* Hft. 11–12. Bibliography, pp. 139–45.

BALSTON, RICHARD JAMES, **SHEPHERD,** CHARLES WILLIAM, and **BARTLETT,** EDWARD.

1907. Notes on the birds of Kent. *8vo. pp. xix+465. front. 8 pl. (col.). map (col.). T. of c. index.* *London.*

A popular account of 320 species.

BAMBERG. Naturforschende Gesellschaft.

1852–*date*. Bericht.

1924–*date*. Abhandlungen.

BANCROFT, EDWARD [1744–1820].

1769. An essay on the natural history of Guiana, in South America. Containing a description of many curious productions in the animal and vegetable systems of that country. In several letters from a gentleman of the medical faculty during his residence in that country. *8vo. pp. [8]+402+[2]. pl.* *London.*

One of the earliest and most informative accounts of the flora and fauna of the Guianas, especially of the British section.

BANFFSHIRE FIELD CLUB AND SCIENTIFIC SOCIETY. *Banff, Scotland.*

1881–1909? Transactions.

BANFIELD, EDMUND JAMES [1852–1923].

[**1918**]. Tropic days. *With 37 illust. 8vo. pp. (6)+7–313. front. 33 pl. T. of c.* *London.*

Sketches of a quiet scene, on an island off the coast of North Queensland; an attempt to describe the animals and types of a crude race in ordinary habit as they live.

1924. My Tropic Isle. *illus.* *N.Y.*

The author's tropic isle is off the coast of North Queensland, and the pages of the book are concerned with the customs and habits of the author on that lonely isle, and lengthy descriptions of the flora and fauna found there.

BANGS, OUTRAM [1862–].

1898–1916. 34 papers from Auk, Proc. Biol. Soc. Washtn., Proc. New. Engl. Zool. Club, etc. *pp. 283. col. pl.*

As the present bound collection of author's separates constitutes a valuable reference handbook for the student of American zoology it is included in this Catalogue.

1909. *See* GRENFELL, W. T.

1928. Birds collected by Dr. Joseph F. Rock in western Kansu and eastern Tibet, by Outram Bangs and J. L. Peters. *8vo. pp. [84]. pl.* (Harvard University—Museum of comparative zoology. Bulletin. Vol. 68, no. 7.) *Camb., Mass.*

1928. A collection of birds from Oaxaca, by Outram Bangs and J. L. Peters. *8vo. pp. 22.* *Cambridge, Mass.*

BANKS, *Sir* JOSEPH [1743–1820].

1772. Voyage to Iceland. *n.p. sq. 8vo. pp. 88+6.*

Unique autograph manuscript by this famous traveler. The journey was undertaken at the request of Lord Sandwich, First Lord of the Admiralty, after the author's return from his voyage round the world with Captain Cook. He was accompanied by Dr. Solander as his assistant in natural history, together with several draughtsmen and secretaries engaged at his own expense. In the Blacker Library.

1798–1800. Catalogus bibliothecæ historico-naturalis Josephi Banks . . . auctore J. Dryander. *5 vols. 8vo.* *London.*

CONTENTS. t. 1. Scriptores generales. 1798.—t. 2. Zoologi. 1796.—t. 3. Botanici. 1797.—t. 4. Mineralogi. 1799.—t. 5. Supplementum et index auctorum. 1800.

An indispensable work of reference to many rare and often unique MSS. and printed books on vertebrate zoology. The copy in the *Bibliotheca Osleriana* has the bookplate of Geo. Thursby, F.R.S. *See also* DRYANDER, JONAS, 1798–1800.

BANNERMAN, DAVID ARMITAGE.

1922. The Canary Islands, their history, natural history and scenery, an account of an ornithologist's camping trips in the archipelago. Illust. and maps. *8vo. pp. xv+(1)+365. front. (col.). 45 pl. (2 col., 6 fold.). 4 maps (fold.). T. of c. 2 append. index.* *London.*

An interesting account of these islands in which the birds figure largely, the three colored plates being devoted to this class, as well as Appendix B, pp. 328–50, which contains a list of the birds, with the status of each species.

1930. The Birds of Tropical West Africa, etc. Vols. I– . *pp. 75+376. index. col. front. 10 col. pl. 119 text figs.* *London.*

This treatise describes and pictures in admirable fashion the birds of a region that includes Gambia, Sierre Leone, the Gold Coast, and Nigeria. It is expected that there will be in all five or six volumes of the work.

BANNISTER, HENRY M.

[**1869**]. List of the birds of Alaska, with biographical notes. *See* DALL, W. H.

BANVARD, *Rev.* JOSEPH.

[**1846**]. Curious habits of birds. *16mo. pp. 96. front. 9 figs. T. of c.* *Philadelphia.*

Conversations between a father and his two sons and daughter, in which he imparts some information about birds, mingled with the usual religious reflections. A book for children.

BARBOUR, THOMAS.

1917. *See* STEJNEGER, LEONHARD H.

1926. Reptiles and Amphibians. *8vo. pp. 20+117. pls. 142 figs.* *Boston.*

BARBOZA DU BOCAGE, JOSÉ VICENTE (1823–95].

1867–73. Aves das possessoes portuguezas da Africa occidental que existem no Museu de Lisbõa. *8vo. illust. pl.* Author's separate from the *Jornal de sciencias mathematicas, physicas e naturales.* *Lisbõa.*

This systematic treatise on the birds of Portuguese West Africa is by a well-known naturalist. The work was issued in seven parts.

1869. Catalogo das Collecões ornithologicas, etc. (Museo Nacional de Lisbõa.) *8vo. pp. 62. Lisbõa.*

1881. Ornithologie d'Angola, etc. *8vo. pp. 32+576. 10 col. pl.* *Lisbonne.*

A very good account of the avifauna inhabiting the Portuguese possessions of Central and West Africa.

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←Bunbury, G.A.S. 1889. Sierra Leone. 8vo. pls + engs. [Ornithologist. Son of the historian] N.Y. + London.

Bancroft, Griffing. 1932. Lower Californian Cruise. The Flight of the Least Petrel. 46 ill. pp. 401. Index

III/.

→ Barber, Joel. 1934. Wild Fowl Decoys. 120 Illust, pp 156. New York.

→ 1923. Birds of Cuba. First published as no. 6 Memoirs of the Nuttall Ornithological Club. Vols 1-5 (1886-1920).

→ Barker, T. 1651. Art of angling.

→ 1871. Bemerkgn. üb. Gegenstände aus d. Gebiete d. vergleich. Anat., Physiol. u. Zoologie. Abt. 1 (üb. Stimmwerkzeuge d. Vögel, üb. Singschwäne) 4 to 6 plo.

→ Barlow, J. circa 1690. Various birds and beasts drawn from the life. folio. 66 copper plates, 14 extra plo. birds.

1901. Publiçacões scientificas, 1857–1901. *4to. pp. 39.* *Lisbõa.*
A bibliography of the author's writings.

BARCELÓ Y COMBIS, Francisco.
1866. Catálogo metódico de las Aves observadas en las Islas Baleares. *8vo. pp. 40.* *Madrid.*
This is one of several tractates by this zoologist, covering nearly the whole of the natural history of the Balearic Islands and the neighboring coast of Spain.

1876. Catálogo de los Reptiles . . . en las Islas Baleares, etc. *8vo. pp. 18.* (Wanting.) *Palma.*

BARCELONA. Actas, Boletin u. Memorias d. (R.) Academia de ciencias y artes de. *See* (R.) ACADEMIA . . . BARCELONA.

BARCELONA. Museo de Ciències Naturales.
1917–*date*. Memorias.

BARING, *Sir* Thomas.
1838. A bibliographical account and collation of 'La description de l'Égypte' presented to the London Institution. *folio. pp. 76.* *London.*
A photostat copy of an unpublished manuscript of great value in describing and appraising the natural history portion of a famous treatise.

BARING-GOULD, (*Rev.*) Sabine [1834–1924].
1863. Iceland: its scenes and sagas. With numerous illustrations and a map. *8vo. pp. xlviii +447. front. (col.). 15 pl. (3 col.). 1 map (fold.). 19 figs. (2 birds). T. of c. 5 append.* *London.*
References to birds are numerous, with two illustrations. Appendix A contains also a copy of the paper, *Notes on the Ornithology of Iceland*, by Alfred Newton, pp. 399–421.

BARKER, David Wilson [1858–] and **CARPENTER,** A.
1926. Nature notes for ocean voyagers; 2nd ed. *See also* CARPENTER, A.

BARKER, T. W.
[**1905**]. Handbook to the natural history of Carmarthenshire. *12mo. pp. vi+(2)+110. T. of c. index.* *Carmarthen.*
In the present work an annotated list will be found on pp. 1–19 of nearly 200 species and subspecies.

BARKER, W. E.
n.d. Pigeon racing, a practical guide to the sport. *12mo. pp. 206. front. 2 pl. 16 figs. T. of c.* *London.*
A complete guide as to the breeding, feeding, training, showing, and general management of racing pigeons, both in health and sickness, with numerous diagrams for the building of a suitable loft.

BARKOW, Hans Karl Leopold [1798–1873].
1856. Syndesmologie der Vogel. *folio. pp. 41. pl.* *Breslau.*
A study of the vertebral column in birds.

BARLOW, C.
1897. The story of the Farallones. *12mo. pp. 32. 26 photopl.* *Alameda, Calif.*
This small but interesting pamphlet gives a good idea of the bird life of the islands.

BARLOW, Thomas Worthington [1823–56].
n.d. A chart of British ornithology, designed for popular use. *8vo. in portfolio.* *London.*
A folding table listing 337 species of birds with their generic characters.

BARNARD, A. K.
1927. Catalogue of the Fishes of South Africa. *2 vols.* (Wanting.)
A recent, trustworthy, systematic account.

BARNES, Henry Edwin.
1885. Handbook to the birds of the Bombay Presidency. *8vo. pp. xxiv+449+(3)+xi. T. of c. append. 2 indexes.* *Calcutta.*
Nearly 600 species are described, mainly from Jerdon's *Birds of India*, 1862–4 (q.v.), with synonymy, measurements, habits, and distribution, etc. An important contribution to Indian ornithology, the author's long residence in India, embracing a period of 20 years, having afforded him ample opportunities for the careful study of bird-life in all its various phases. The MS. corrections in ink in the present copy are in accordance with the *Fauna of India* vols. on Birds.

BARNESBY, George J. and **SHUCKARD,** W. E.
[**1860**?]. Chamber and cage birds: . . . translated from the last German ed. of Bechstein's Chamber birds, by W. E. Shuckard. A new ed. revised and partly rewritten, and the points of show birds described by G. J. Barnesby. *See also* BECHSTEIN, J. M.

[**1879**]. Cage birds . . . Translated from the last German ed. of Bechstein's Chamber birds, by W. E. Shuckard. Revised and partly rewritten and the points of show birds described by G. J. Barnesby. *See also* BECHSTEIN, J. M.

BARNUM, M. K.
1886. List of the Birds in Onandago Co., N.Y. *8vo.* *Syracuse.*

BARRANDE, Joachim [1799–1883].
1868. I. Réapparition du genre Arethusina.—II. Faune silurienne des environs de Hof, en Bavière. *8vo. pp. [8]+110. pl.* *Prague.*
The author was a well-known paleontologist, writer of many monographs on his favorite subject.

1872. Crustacés divers et poissons des dépôts siluriens de la Bohème . . . Extrait du Supplément au vol. 1. du Système silurien du centre de la Bohème, par Joachim Barrande. *Prague.*

BARRÈRE, Pierre [1690–1755].
1741. Essai sur l'histoire naturelle de la France Équinoxiale.
Contains many references to the flora and fauna of French Guiana

1743. Nouvelle relation de la France équinoxiale, contenant la description des côtes de la Guiane; de l'isle de Cayenne, etc. *16½ cm. 2 p. l., iv, 250 pp., 1 l. 17 fold. pl. 2 fold. maps.* *Paris.*
A second edition of this description of tropical French South America.

1745. Ornithologiae Specimen Novum, etc. *8vo.* *Perpiniani, France.*

BARRETT, Charles.
1919. In Australian wilds; the gleanings of a naturalist. With illustrations from photographs by the Author. *8vo. pp. 230. front. 103 figs. T. of c. 2 indexes.* *Melbourne.*
Full of references to birds; no less than 60 out of the 103 illustrations depict them in their native wilds. The present copy is autographed by the author.

1923. Rambles round the zoo. *12mo. pp. 123. front. 38 pl. T. of c.* *Melbourne.*
Stories of the Melbourne Zoological Gardens. The portion on Birds is described in chapter X, pp. 104–23, with eight illustrations. The present copy is a gift from Lady Barrett.

BARRETT-HAMILTON, GERALD EDWIN HAMILTON [1871–].

1892. Harrow Birds. *8vo.* *Harrow.*

1901–13. *See* BELGIUM. 'La Belgica'.

1925. *See* HINTON, M. A. C.

BARRINGTON, GEORGE [1755–1804].

1802. The history of New South Wales including Botany Bay, Port Jackson, Parramatta, Sydney, and all its dependancies. *8vo. pp. (48)+505. front. (col.). vignette (col. bird). 21 pl. T. of c.*

An interesting account of the country with notes on the fauna and flora; birds on pp. 435–48, with five coloured illustrations, and vignette of the black swan.

1803. An account of a voyage to New South Wales. *8vo. pp. (10)+467+(5). front. (portr.). vignette (col.). 2 pl. (col.). 1 map (col. fold.). index.* *London.*

A companion volume to the author's *History of New South Wales*, 1802 (q.v.). References to birds will be found on pp. 158, and 295–300.

BARRINGTON, RICHARD MANLIFFE [1849–1915] and **others.**

1882–87. Report on the migration of birds in . . . 1881(–86). *See also* HARVIE-BROWN, J. A.

1900. The migration of birds, as observed at Irish lighthouses and lightships including the original reports from 1888–97, now published for the first time, and an analysis of these and of the previously published reports from 1881–87. Together with an appendix giving the measurements of about 1600 wings. *8vo. pp. xxv+(1)+667. front. (map fold.). 9 maps. T. of c. append. 11 indexes.* *London.*

A very exhaustive report, with tables of the arrival and departure of a number of species. Only 350 copies of the work were printed. Attached to the present copy (the author's) is an autograph letter and postcard to C. Stonham, dated Oct. 17, 1904.

BARROIS, CHARLES EUGÈNE [1851–1926].

1889. Faune du calcaire d'Erbray (Loire inférieure); contribution à l'étude du terrain dévonien de l'ouest de la France. *4to. pp. 348. pl.* *Lille.*

Author's reprint from *Mémoires de la Soc. géol. du nord*, t. 3.

[**1891**]. Faune du grès armoricain. *8vo. pp. [106]. pl.* *Lille.*

Extrait des *Annales de la Société géologique du Nord*, vol. 19, 1891.

BARROW, JOHN HENRY.

1832. Characteristic Sketches of Animals . . . by Landseer. *4to. illust.* *London.*

An appreciation of a celebrated artist's contribution to spirited paintings of animal life.

BARROW NATURALISTS' FIELD CLUB AND LITERARY AND SCIENTIFIC ASSOCIATION. *Barrow-in-Furness.*

1876–*date.* Annual Reports.

BARROWS, WALTER BRADFORD.

[**1885**]. Accipitres. *See* KINGSLEY, J. S. (The) Standard natural history, vol. IV.

1889. U.S. Department of Agriculture. Division of Economic Ornithology and Mammalogy. Bulletin 1. The English sparrow (passer domesticus) in North America, especially in its relations to agriculture. Prepared under the direction of Dr. C. Hart Merriam, Ornithologist. *8vo. pp. 405. map (col. fold.). 10 figs. T. of c. index.* *Washington.*

Presenting the evidence, pro and con, from which it is apparent everything is against the eligibility of the House Sparrow in America. The work is based primarily on the replies of over 3,000 observers to circulars of inquiry sent out by the Division of Economic Ornithology of the Department of Agriculture, as well as to the examination of over 500 sparrow stomachs of which only about one in six contained any insect remains, and of these remains two-thirds were of beneficial insects.

**** and **SCHWARZ,** E. A.

1895. The Common Crow of the United States. Bulletin No. 6, U.S. Department of Agriculture, Division of Ornithology and Mammalogy. General report: Walter B. Barrows. Report on insect food: E. A. Schwarz. *8vo. pp. 98. front. 2 figs. T. of c. append. index.* Author's separate. *Washington.*

The present report is based on an examination of the contents of 909 stomachs, from which it would appear that in most places the Crow is neither so harmful nor so valuable as to render special laws necessary for its destruction or protection, but from a purely economic standpoint the attempt to rid a State of Crows by bounties or any other means must prove either a complete failure or an expensive success.

1912. Michigan bird life, a list of all the bird species known to occur in the state together with an outline of their classification and an account of the life history of each species, with special reference to its relation to agriculture. *8vo. pp. xiv+822. front. 69 pl. 152 figs. T. of c. 2 append. bibliogr. glossary. index.* *Lansing, Mich.*

A complete account of 326 birds identified within the limits of the State, their habits, distribution, and migration.

BARRY, MARTIN [1802–55].

(**1837**). On the Unity of Structure in the Animal Kingdom, etc. *8vo.* [O.] *Edin.*

BARTH, JACOB BÖCHMANN.

1881. Norges Fuglevildt, etc. *8vo.* *Kjøbenhavn.*

BARTHÉLEMY-LAPOMMERAYE, C. J.

1859–62. Richesses ornithologiques du Midi de la France. *See* JAUBERT, J. B.

BARTHÉLEMY SAINT-HILAIRE, J. *See* ARISTOTLE, 1883 and 1887.

BARTHEZ, PAUL JOSEPH [1734–1806].

1798. Nouvelle mécanique des mouvements de l'homme et des animaux. *4to. pp. 16+246.* *Carcassonne.*

A rare, scientific contribution to a study of aerial flight. In the last three propositions of the first section (pp. 43–8) the bipedal posture of the bird at rest is considered. The sixth section (pp. 190–245) is a treatise on the flight of birds. This work is of historic importance following upon that of Borelli in the seventeenth century.

BARTHOLINUS, THOMAS [1616–80].

1668. Thomas Bartholinae Dissertatio de Cygni, etc. *1 vol. 16mo.*

An early study of the Swan.

BARTHOLOMAEUS ANGLICUS (*fl.* 1250).

1481. De Proprietatibus Rerum. Gothic letter, 456 ll., the first and last blank, first initial of each book supplied in red, green, and mauve, other initials and paragraph marks in red, rubricated throughout, stamped morocco, g.e. by Riviere. *fol.* Johann Koelhoff. *Cologne.*

This is the second Cologne edition. The first one was issued in 1472 and printed in that town by Caxton. Its author, professor of theology in the University of Paris, should not be confused with

1839-40. Researches in embryology. 3 ser. 4 to. 186 pp.; 9 plo.

(Bartholinus. Thomas). 1669. De luce hominum et brutorum II. III.
Novis rationibus et variis historiis secundum
illustrat: Hafniae (Copenhague) Matth.
Godicchenius, impensis P. Haubold. ~~1669~~.
pet. in-8, avec vign. gr. au titre. Vélin
~~(2276)~~

1485. De Proprietatibus rerum. [Dutch Ed.] Fol. stamped calf. old boards. Haarlem. £27. E.S.W.L. Extremely rare. fine edition
Maggs.

Bartholomew de Glanville (like our author an English minorite monk) who lived about A.D. 1360. The copy in hand is a remarkably fine and clean example, wanting only two blank leaves.
A previous owner of this Blacker Library copy has written in the following comments: 'The book before us is no doubt one of the earliest specimens of Caxton's art, although it is issued to the public as a work of Koelhoff.'
Caxton, on the termination of his apprenticeship to a merchant or mercer in London, in 1442, went into the Low Countries, either on his own account or as the agent of some merchants, and resided abroad for 30 years. Whilst there he studied the art of printing on the premises of Koelhoff during which period he was assisted by Wynkyn de Worde, a native of Lorraine.
The first specimens of their craft were the present publication, *The Game and Play of Chesse*, etc., several of them not actually issued until some years afterwards and then without date or place.
Caxton returned to England in 1472, afterwards going back and forth to the Continent, the first book printed in Westminster bearing date 1477. It was during these migratory visits that he began and finally completed the *Bartholomaeus*, which he left with his friend and instructor Koelhoff, to be published by him under his own name whenever he chose. It was not until three years afterwards that Koelhoff presented to the world this magnificent edition of an extraordinary work.
The first English edition of the work was published about 1496 by Wynkyn de Worde, and is one of the most magnificent volumes that issued from his famous press.
It is from one of the leaves of his translation that we quote the authority attributing the printing of this Latin version to Caxton. In the 'Prohemium Bartholomei de Proprietatibus rerum'—a series of introductory verses—he thus writes: 'and of your charity call to remembrance the soul of William Caxton, first printer of this book in Latin tongue at Cologne, himself to advance that every well disposed man may therein look.'

1492. De Proprietatibus Rerum. Gothic characters. *folio. 62 ff.+2+ff. 200. illust.* Initials in red, blue, green, and gold. 19 books. Hain 2510. *Br. Mus. Cat.* ii. 435. A rare and beautiful copy. *Lyons.*

Mullens and Swann believe that the original date of composition of this famous work is uncertain. It was probably compiled between the years 1248 and 1267. Bartholomaeus is worthy of mention as being the author of one of the earliest printed works on natural history in the English language, and of one of the most widely read books of medieval times. His work was translated into French (in 1372), and a little later into Spanish, Dutch, and English. Its popularity, continue, Mullens and Swann, remained in full vigor after the invention of printing, no less than ten editions being published in the fifteenth century of the Latin copy alone, with four French translations, a Dutch, a Spanish, and an English one. *See also* the fuller description of this volume in Chapter XIX of this Introduction.
The first English translation was made by John of Trevisa for Sir Thomas Berkeley in 1397, and it was printed in London in (or about) 1495 by Wynkyn de Worde.
In the edition of 1495 the English names of birds appear in the first paragraph of a chapter instead of at the head with the one Latin name.
Of the nineteen books into which the work is divided, Book XII is devoted first to 'De Avibus in generali', followed by accounts of 'Aquila, or Egle'; 'Ancipitre, or Gosehauke'; 'Alieto' [= Sparrowhawk?]; 'Apibus, or Bees'; 'Bubo, or Owle'; 'Columba, or Culuour' [= Dove]; 'Coturnia, or Curlewe'; 'Ciconia, or Storke'; 'Cornix, or Crowe'; 'Corvo, or Rauen'; 'Cigno, or Swanne'; 'Culix, or Gnatte' [the fly]; 'Cicada, or Grasshopper'; 'Fenix' [= Phoenix]; 'Grus, or Crane'; 'Gallus, or Cocke'; 'Gallinaceo, or Capon'; 'Gallina, or Henne'; 'Grype' = [Griffon]; 'Herodius, or Faucon'; 'Hirundo, or Swalowe'; 'Kaladrius' (?); 'Larus' [a gull]; 'Locusta' [locust]; 'Mergulus, or Cote'; 'Milvus, or Kyte'; 'Nicticorax, or Nyghte Crowe'; 'Onocrocalus, or Myre-drumble'; 'Pellicane'; 'Perdix, or Pertriche'; 'Pavo, or Pecoke'; 'Passeres, or Sparrowes'; 'Strucio, or Ostriche'; 'Turture'; 'Vulture'; 'Ulula' [= Bittern]; 'Upupa, or Lapwynge'; 'Vespertilio, or Remouse' [the bat].
See also the English translation, 1582, in this Catalogue.

1492. De proprietatibus rerum. A. Koberger. *Nürnberg.*

This extremely rare copy is from the library of Dean Frank Adams.

18th Sept. 1494. De las Propriedades de las Cosas. El libro de proprietatibus Rerum en Romance. *folio.* Gothic letter, double columns of 46–7 lines. With the woodcut Arms of Spain, sixteen large woodcuts and a large woodcut printer's device on a black ground. Woodcut initial letters. Head-lines. Rarissima. Henri Mayer, 18th September. *Toulouse.* Hain 2523 (without seeing it). Proctor 8722. Pellechet 1887. 46 leaves (gg 1–mm 8), including the entire Book XVII, 87 pp., 'De Los Animales', from the above edition, the first in Spanish, of Bartholomew the Englishman's Encyclopedia, compiled in the early thirteenth century. The book describes 110 animals, and is preceded by several pages relating to animals in general.

Of this extremely rare incunable McGill has only a portion, presented to the Library of the Medical Faculty by Maggs Bros., London. This excerpt comprises 13 ff. which include the complete Book III, *Del Anima*, treating the several Senses. Beginning on the verso of (script) folio 24 is a discussion of *Vision—Del sentido dela vista*, illustrated by two woodcuts in the text.
A facsimile of the general title to the volume is prefixed, and on the verso of the leaf is drawn a fifteenth-century woodcut of the crucifixion, which does not appear in the original volume.
The Compiler had the whole bound in imitation of contemporary binding by Zaehnsdorf, and gave the volume, thus embellished, to the Medical Library.

1535. De Proprietatibus Rerum. (In English.) Black-letter, double columns of 50 lines. Thomas Berthelet. Second edition in English. *sm. folio.* Folio 226 misplaced. Very rare. Lowndes regards (vol. ii, 898) this edition as the *chef-d'œuvre* of Berthelet's press. *London.*

The translation is that of John of Trevisa, made at the request of Thomas Lord Berkeley in 1398. It was first printed in England by Wynkyn de Worde in 1495. Berthelet's is the second edition in English. The earliest edition in Latin was either the one printed at Basle about 1470–1, or that printed at Cologne about the same time. This famous work is a compilation in nineteen books from various departments of human knowledge, *and was the encyclopedia of the Middle Ages.* Berthelet's device is only found in a few copies (missing in this instance), the others having the last page blank, and very often the last leaf containing it is wanting altogether.

1582. [Batman uppon Bartholome, his Booke De Proprietatibus rerum; trans. from the Latin by John de Trevisa.] *folio.* T. East. fol. 86–425. The work begins with Bk. 7 *De infirmitatibus*, and ends with Bk. 19 *De Instru. musicis.* *London.*

The copy in hand is the zoological portion, translated by Stephen Batman. It is an extremely rare edition; the Blacker Library item has been carefully compared with the British Museum copy, and found to agree with it.

**** ed. **STEELE,** ROBERT.

1893. Medieval lore; an epitome of the science, geography, animal and plant folk-lore and myth of the middle age; being classified gleanings from the encyclopedia of Bartholomew Anglicus, *On the properties of things*; ed. by Robert Steele with a preface by William Morris. *8vo. pp. viii+(2)+154. 2 figs. T. of c. bibliogr. glossary. index.* *London.*

This book consists of nine chapters on Medieval Science, Manners, Medicine, Geography, Natural History—Trees—Birds—Fishes and Animals. Birds are treated in chapter VIII, pp. 99–113, the species mentioned being the eagle, goshawk, pigeon, crow, raven, swan, phoenix, crane, griffin, pelican, peacock, and vulture.

BARTHOLOMEW, J. G. [1860–] and **others.**

1911. Atlas of zoögeography. A series of maps illustrating the distribution of over 700 families, genera and species of existing animals, prepared by J. G. Bartholomew, W. Eagle Clarke, and Percy H. Grimshaw. Under the patronage of the Royal geographical society. *46 cm.* Forms vol. 5 of Bartholomew's physical atlas. *Edin.*

Includes all families of mammals, birds, reptiles, and amphibians together with several of the more important genera and species, most of the families of fishes, and a selection of families and genera of molluscs and insects. Text furnishes concise information about the groups whose distribution is shown on the plates. About 200 maps altogether, as most of the 36 plates contain six maps each. Contains also a bibliography of about 1,000 titles arranged by regions subdivided by animals.

BARTHOLOMEW DE GLANVILLE (GLANVILLA). *See* BARTHOLOMAEUS ANGLICUS.

BARTLETT, Abraham Dee.

1898. Wild Animals in Captivity. *8vo.* (Wanting.) *London.*

****, **BARTLETT,** Edward, *ed.*

1900. Bartlett's life among wild beasts in the 'zoo'; being a continuation of *Wild animals in captivity*; the habits, food, management and treatment of the beasts and birds at the 'Zoo'; with reminiscences and anecdotes by A. D. Bartlett; compiled and edited by Edward Bartlett. *illust. 8vo. pp. xv+(3)+375. front.(portr.). 9 pl. 23 figs. T. of c. 4 append. index.* *London.*

A second series of Abraham Bartlett's Zoological notes, and anecdotes of birds and animals, etc., in the London Zoological Gardens, Regent's Park, edited by his son. The portion relating to the birds will be found in part II. pp. 109–243, with ten illustrations. The appendices contain Biographical notes, anecdotes, etc.

BARTLETT, Edward.

1873. On the birds of Eastern Peru. *See* SCLATER, PHILIP LUTLEY.

1888–9. A monograph of the weaver-birds, Ploceidae, and arboreal and terrestrial finches, Fringillidae. *4to. pp. 203. 31 pl.* *Maidstone.*

An unfinished manual of the weaver-birds, consisting of five parts only of the originally proposed 90 or 95 parts.

1892. The Mammalia of Borneo. *4to.* *Sarawak.*

1894. The Crocodiles and Lizards of Borneo, etc. *8vo.* *Sarawak.*

1900. Bartlett's life among wild beasts in the 'zoo'. *See* BARTLETT, A. D. and BARTLETT, EDWARD.

1907. Notes on the Birds of Kent. *See* BALSTON, R. J.

BARTON, B. S.

1883. Barton's Fragments of the Natural History of Pennsylvania. Edited by O. Salvin. *4to. pp. [1], xviii, 24.* *London.*

This is a reprint of the more complete version of the original, published in 1799. *See also* WILLUGHBY SOCIETY.

BARTON, Frank Townend.

1912. Pheasants in covert and aviary. With four coloured plates from life by H. Grönvold, and thirty-seven other illustrations. *4to. pp. 288. front. (col.). 3 pl. (col.). 24 pl. 9 figs. T. of c. index.* *London.*

A practical, non-technical work on the breeding and rearing of pheasants.

BARTRAM, William [1739–1823].

1793. William Bartram's Reisen durch Nord- und Süd-Karolina, Georgien, Ost- und West-Florida . . . von den Naturprodukten dieser wenig bekannten grossen Länder. Aus dem Englischen. Mit . . . Anmerkungen von E. A. W. Zimmermann. Mit Kupfern. *8vo. pp. 26+5. index. supplement.* *Berlin.*

German translation of the 1791 edition—a very important Americana containing early descriptions of the fauna and flora of the Southern States visited by this naturalist-observer. A scientific, descriptive list of the avifauna is given on pp. 279–94; the other fauna and the flora elsewhere. There are eight well executed copper-plate illustrations.

1794. Travels through North and South Carolina, Georgia, East and West Florida, etc. 2nd ed. *8vo. pp. 24+527. 8 col. pl. index. T. of c. extra-illustrated, 2 pl.* *Phila. and London.*

This edition is apparently much rarer than the *editio princeps*. The title-page imprint calls it the 'second edition in London'. The present copy has several extra copper plates (pasted in) to illustrate the text.

BASCHIERI, Antonio.

See GAZZADI, DOMENICO. 1843–6.

BASCOM, Caroline Crowninshield.

[*c.* **1905**]. The bird hospital. Illustrated from photographs. *8vo. pp. 173. front. (col.). 6 pl. T. of c.* *New York.*

Simple tales, written especially to teach children to love and be kind to all living creatures.

BASEL. NATURFORSCHE GESELLSCHAFT.

1834–*date.* Bericht und Verhandlung.

BASKETT, Jas. Newton.

n.d. Story of the Birds. *12mo.* *New York.*

BASSETIERE, Gerard de la.

1913. Essai sur le Chant de Quelques Oiseaux. *Huisseau-sur-Cosson (Loire-et-Cher).*

BASS ROCK. Its Civil and Ecclesiastical History.

1847. (Several contributors.) *8vo.* (Wanting.) *Edinburgh.*

BASSLER, Ray Smith [1878–].

1915. Bibliographic index of American Ordovician and Silurian fossils. *2 vols. 4to. tab.* *Washington.*

BASTIAN, Henry Charlton [1837–1915].

1871. The modes of Origin of lowest Organisms, etc. [O.] *London.*

BATALEUR. *See* BATELEUR.

BATAVIA.

1867–*date.* Notulen van de algemeene . . . Bataviaasch Gen. van . . . Wetenschappen. Deel 1–*date.* Register 1867–98.

BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.

Batavia.

1862–1921. Notulen; from **1922** in Tijdschrift.

1919–*date.* Populair wetenschappelijke serie.

1852–*date.* Tijdschrift.

BATELEUR, THE.

1928–*date.* A quarterly Journal of African Ornithology. Edited by . . . H. F. Stoneham and A. H. Paget Wilkes. *8vo.* *Nairobi.*

This admirably conducted periodical appeared at first with the incorrectly spelled title 'Bataleur', but this was soon corrected to the proper heading—as above.

BATEMAN, G. C.

1897. The Vivarium, etc. *8vo.* (Wanting.) *London.*

BATES, Frank Amasa.

1896. The game birds of North America; a descriptive check-list. *8vo. pp. 118. front. 21 figs. index.* *Boston.*

A popular account of 124 species of birds habitually pursued for food and sport, with short accounts of their habitat, size, and plumage for easy identification in the field.

BATES, George Latimer.

1930. Handbook of the Birds of West Africa. *8vo. pp. 23+572. 1 pl. 1 map. text-figs. index.* *London.*

An excellent up-to-date monograph, poorly illustrated it is true, but a well-written, systematic treatise of decided value to the advanced student.

(Bastian H.C.)

→ 1882. Le cerveau organe de la pensée chez l'homme et chez les animaux. Ballière et Cie. Paris.

←Bastian, H.C. 1905. Nature and origin of living matter. 245 illus.

←Bate and Westwood. 1863-68. History of British sessile-eyed crustacea. 2 v. illus.

— dups? — ill. ½ leather. [+pts of Vol. 10] £2.

7 Bath Nat. Hist. and Antiq. Field Club. Proceedings. Vols. 1-7. Bath, 1867-93

→1931. 2LO Animal Stories. 8vo. pp. 204, illus. London.

→ Baudouy, S. 1912. Grace pour les oiseaux! Avignon.

→ Baudrimont, A. and Auge, M.S., 1851. Rech. anat. et physiol. sur le developp. du foetus et en part. sur l'evolution embryonnaire des oiseaux et des batraciens. 223 p., 18 pl.

BATES, HENRY WALTER [1825–92].

1863. The naturalist on the River Amazons . . . during eleven years of travels. *2 vols. 8vo.* Vol. I, *pp. viii+(2)+351. front. 4 pl. 14 figs (1 vignette). 1 map (fold.). T. of c.* Vol. II, *pp. vi+423. front. 3 pl. 21 figs. (1 vignette). T. of c. index. London.*

The first edition of a famous work—the results of travels during the years 1848–59, when 14,712 natural history specimens were collected, 8,000 being new to science. 360 species of birds were collected—being named by Dr. Sclater.

1873–4. The German Arctic expedition of 1869–70. *See* KOLDEWEY, *Capt.* KARL.

1892. The naturalist on the River Amazons, a record of adventures, habits of animals, sketches of Brazilian and Indian life. With a memoir of the author by Edward Clodd. *8vo. pp. lxxxix+(3)+395. front. (portr.). 1 pl. (col. fold.). 42 figs. 1 map (fold.). T. of c. index. London.*

A revised edition of the *editio princeps* of 1863.

BATH NATURAL HISTORY AND ANTIQUARIAN FIELD CLUB. *Bath.*

1867–1909. Proceedings.

BATMAN, STEPHEN.

1582. [Batman uppon Bartholome, his booke De proprietatibus rerum; tr. from the Latin by John de Trevisa.] *See* BARTHOLOMAEUS ANGLICUS.

BATTEN, HARRY MORTIMER [1888–].

1923. Inland birds. Northern observations by a sportsman. *8vo. pp. 288. front. 33 pl. T. of c. London.*

Notes and observations on the inland birds of northern Scotland.

1925. Nature from the highways. *illust. 8vo. pp. 312. front. 15 pl. (21 figs.). T. of c. London.*

Each chapter deals with some form of outdoor life, mostly in the British Isles, although Canada is mentioned as well.

[**1928**]. Habits and Characters of British Wild Animals. *8vo. pp. 346. 16 pl. New edition.*

A popular and accurate account of the life-history of 16 British mammals.

1929. Habits and characters of British Wild Animals. Illustrated by W. Reynolds. *Cheap edition. 8vo. London.*

BATTYE, HARRY WATSON [1852–1927].

1919. Yorkshire canaries. How to breed, manage, and exhibit. Illustrated by H. Norman. *8vo. pp. 80. front. 3 pl. 5 figs. T. of c. London.*

BAUM, HERMANN.

1903. Kunene-Sambesi-Expedition H. Baum. *8vo. pp. 11+593. 14 pl. text-figs.* (Wanting.)

Although otherwise scientifically important the above report gives us very little African zoology. A. Sokolowsky describes the antelopes of the regions visited.

1926. *See* ELLENBERGER, WILHELM.

BAUR, GEORG.

1882–7. [Memoirs on vertebrata.] *8vo. illust. pl.* In German.

BAUTZEN. Naturwissensch. Gesellschaft Isis zu Bautzen.

1896–*date*. Bericht (u. Sitzungsberichte u. Abhandlungen).

BAXTER, EVELYN V. and **RINTOUL**, LEONORA J.

1928. The geographical distribution and status of birds in Scotland. *8vo. pp. viii+425. front. (map). bibliogr. 5 append. index. Edinburgh.*

BAXTER, LEON H.

1920. Boy bird house architecture. *8vo. pp. 61. front. 21 pl. (diagrs.). 16 figs. T. of c. Milwaukee, Wis.*

BAY, EDVARD.

1894. Hvirveldyr [of the east coast of Greenland]. *8vo. pp. 58.* Repr. from *Meddelelser om Grønland*, 19. *Kjøbenhavn.*

1895. Jagtskitser fra den Danske expedition til Østgrønland (1891–2). *8vo. pp. 23.* Repr. from *Dansk jagttidende. Kjøbenhavn.*

BAYLOR UNIVERSITY MUSEUM. *Waco, Texas.*

? 1926. Contributions.

1927. Special Bulletin. No. 1.

BAYNE, CHARLES S. [1876–].

n.d. Exploring England; an introduction to nature-craft. *8vo. pp. 216. front. 15 pl. T. of c. index. London.*

BAYNES, ERNEST HAROLD [1868–1925].

1915. Wild bird guests; how to entertain them; with chapters on the destruction of birds, their economic and æsthetic values, suggestions for dealing with their enemies, and on the organization and management of bird clubs. *8vo. pp. xviii+(2)+326. front. 33 pl. 20 figs. T. of c. append. index. New York.*

A work designed mainly with the idea of pointing out that bird clubs may be made a most powerful factor in the work of bird conservation.

1927. Animal heroes of the Great War; with an account of the writer, 'The man and his enemies', by Owen Wister. *8vo. pp. 54+307. illust. portr. New York.*

BAYREUTH. Naturwissensch. Gesellschaft.

1911–14. Bericht 1–2 (all pub.). *8vo. pl.*

BAY STATE OOLOGIST, THE.

1888. To the Study of Birds, Nests, and Eggs. W. H. Foote, editor and publisher. Pittsfield, Mass. *12mo.* Monthly. Suspended. Succeeded by the *Ornithological and Oological Semi-Annual*. Frank L. Burns furnishes the following data: Vol. I, 1888. Nos. 1–6, Jan.–June. *pp. iv+52.*

Though containing in the main boyish accounts of collecting trips, there are interesting contributions from J. Warren Jacobs, E. F. Koch, Wm. L. Kells, Le Grande, T. Meyer, B. T. Taylor, and others.

BAZIN, P. F. A. *See* AUDUBON AND BAZIN, 1857.

BĀZ-NĀMA.

[*ca.* **1780**]. A Persian manuscript on the diseases of the Falcon. Anon. Red-lined frame. *12mo.*

Probably a unique transcript from an original by an unknown scribe. Collected by W. Ivanow in Hyderabad—Deccan in Jan. 1930. [W. I.]

'BEAGLE', Voyage of the. 1838–44. *See* DARWIN, CHARLES.

['**BEAGLE**', **Voyage of the** (*contd.*)]

1839–43. The Zoology of the voyage of H.M.S. 'Beagle' under the command of Capt. Fitzroy, 1832–36. Edited by C. Darwin. *5 pts. or vols. roy. 4to. with 84 plain and 82 col. pl.*

CONTENTS. Fossil Mammalia, by R. Owen. With 32 pl. Mammalia, by G. R. Waterhouse. With 32 col. and 3 plain pl. Birds, by J. Gould and G. R. Gray. With 50 col. pl. Fishes, by L. Jenyns. With 29 pl. Reptiles, by T. Bell. With 20 pl.

This famous expedition marked the high-water mark of scientific exploration, and the reports of the zoology form essential titles for every well-ordered library on natural history.

'BEAGLE' and **'ADVENTURE'.**

1839. Narrative of the surveying voyages, 1832–6. *4 vols.*

BEAL, FOSTER ELLENBOROUGH LASCELLES (1840–1916].

1895. Bulletin No. 7, U.S. Department of Agriculture. Division of Ornithology and Mammalogy. Preliminary report on the food of woodpeckers. *8vo. pp. 33. front. 4 figs. T. of c. Washington.*

A preliminary report, based on the examination of 679 stomachs of Woodpeckers, representing seven species.

1897. U.S. Department of Agriculture. Farmer's Bulletin No. 54. Some common birds in their relation to agriculture. *8vo. pp. 40. 22 figs. T. of c. Washington.*

Brief abstracts of the results of food studies of about 30 grain and insect-eating birds belonging to ten different families.

******** and **JUDD,** SYLVESTER D.

1898. U.S. Department of Agriculture division of biological survey. Cuckoos and shrikes in their relation to agriculture. The food of cuckoos. The food of shrikes. By Sylvester D. Judd. Prepared under the direction of Dr. C. Hart Merriam chief of biological survey. *8vo. pp. 26. front. 1 fig. T. of c. Washington.*

From this investigation we learn that cuckoos rank among our most useful birds, whilst the loggerhead shrike's beneficial qualities outweight four to one its injurious ones. These facts are based on the examination of the contents of 310 stomachs, of which one-half were cuckoos, and the other half shrikes.

1900. Food of the bobolink, blackbirds, and grackles. *4to. pp. 77. illust. map.* (U.S. Agri., Dept. of.—Biological survey, Division of. Bull. no. 13.) *Washington.*

1900. How Birds affect the Orchard.

1907–10. U.S. Department of Agriculture Biological Survey—Bulletin No. 30, C. Hart Merriam, Chief. Birds of California in relation to the fruit industry. *2 vols. in 1. 8vo.* Vol. I, *pp. 100. front. (col.). 4 pl. T. of c.* Vol. II, *pp. 96. front. (col.). 5 pl. (col.). T. of c. Washington.*

A careful study of the food habits of birds that frequent orchards shows that most of the species are beneficial, and that without their aid the difficulty and expense of raising fruit would be enormously increased. A few species under certain circumstances are harmful and need to be held in check.

1911. U.S. Department of Agriculture Biological Survey—Bulletin No. 37 . . . Food of the woodpeckers of the United States. *8vo. pp. 64. front. (col.). 5 pl. (col.). 3 figs. T. of c. Washington.*

The present paper is based upon the examination of 3,453 stomachs of woodpeckers representing 16 species and nearly twice as many subspecies, taken in all parts of the United States, and Canada. Tables are given showing the percentages of animal and vegetable food contained in the stomachs.

1915. United States Department of Agriculture, Bulletin no. 280. Contribution from the Bureau of Biological Survey. Professional paper. Food habits of the thrushes of the United States. *8vo. pp. 23. 2 figs. T. of c.* Author's separate. *Washington.*

BEALE, THOMAS.

1839. The natural history of the sperm whale . . . To which is added a sketch of a South-Sea whaling voyage . . . [2nd ed.] *19½ cm. pp. vi, [7]–12, 393. front. illust. 2 pl. London.*

BEAN, TARLETON HOFFMAN. *See* UNITED STATES. VOYAGE TO ALASKA, 1883.

1893. The Fishes of Pennsylvania, etc. *8vo. pp. vii, 149. 35 pl. (15 col.). Harrisburg.*

1895. *See* GOODE, GEORGE BROWN.

BEAUFORT, L. F. DE. *See* WEBER, M., 1911–28.

BEAUGRAND, CHARLES.

1888. The walks abroad of two young naturalists; [tr.] from the French. David Sharp. Numerous illustrations. *8vo. pp. xvi+304. 139 figs. T. of c. London.*

BEAUREGARD, HENRI.

1876. Recherches sur les réseaux vasculaires de la chambre postérieure de l'œil des vertébrés. *8vo. pp. 3+159. pl. Paris.*

Graduate thesis of Paris on the vascular supply to the posterior chamber of the eye in vertebrates.

BEAVAN, ARTHUR HENRY.

1905. Birds I have known. *12mo. pp. (6)+7–256. front. 38 figs. T. of c. index. London.*

BEAUVALETTE, A.

1903. Traité de Fauconnerie, etc. *4to. Evreux.*

An interesting account of falconry, ancient, medieval, and modern.

BECHSTEIN, JOHANN MATTHAEUS [1757–1822].

1793–1809. Getreue Abbildungen naturhistorischer Gegenstaende des . . . In- und Auslandes. Neue Ausgabe. *80 Hefte.*

One of the most noteworthy atlases (with descriptive text) of this famous naturalist. The present copy has 80 parts and is very rare.

1795–7. Naturgeschichte der Stubenvögel, etc. Naturgesch. oder Anleitung z. Kenntniss der Säugethiere, Amphibien, Fische, Insekten und Würmern, welche man in der Stube halten kann. *2 vols. 8vo. pp. 10+488+10; 12+312+8. 2 col. t.-p. 4 col. pl. Gotha.*

The first edition of a very popular work. The second volume is wanting.

1795–1805. Gemeinnützige Naturgeschichte Deutschlands nach allen drey Reichen. [Vögel.] *3 vols. 8vo.* II–IV. Special title for the first volume: *Gemeinnützige Naturgeschichte der Vögel Deutschlands für allerley Leser, vorzüglich für Forstmänner,* etc. Vol. I (1805) [II]. *pp. xxxiv+1346 +2. 30 pl. front.* Vol. II [III] 1795. *pp. xx+800. 12 pl. numb. I–XVII. front.* Vol. III [IV] 1795. *pp. xviii+946. 19 pl. (numb. I–XXX.) index to 3 vols. Leipzig.*

The above set of this famous author's early works on birds (in the original covers) is from Prof. Anton Reichenow's library, and bears his autograph. It appears to be composed of two volumes of the first edition and one of the second. The four supplements are appended to vol. III. In this well-known treatise a full account of German birds is given and their characters discussed. Several new genera and species are described.

= Belvalette (q.v)

→ Beckett, Sir C. 1879. Origin of laws of nature. 800.

ie (tv)

1797. Franz Le Vaillants Naturgeschichte der Afrikanischen Vögel. Erster Band (all pub.). *sm. 4to. pp. x+3+210. index. 48 (I–XLVIII) hand-col. copper pl. 8 parts* (all issued). *Nürnberg.*

This treatise is apparently a translation with emendations ('Aus dem Französischen übersetzt und mit Anmerkungen versehen') of Levaillant's *Histoire naturelle des Oiseaux d'Afrique*, 1796, and was probably intended to follow in regular order the proposed 51 *livraisons* of that very doubtful publication, but, so far as the annotator knows, it came to an end with the eighth part.

1797. Naturgeschichte; oder, Anleitlung zur Kenntniss und Wartung der Säugethiere, Amphibien, Fische, Insecten und Würmer, welche man in der Stube halten kann. *pp. [14]+312.* Extra engraved t.-p.: Naturgeschichte der Stubenthiere. *Gotha.*

A separate volume of the author's *Naturgesch. d. Stubenthiere.*

1803–12. Ornithologisches Taschenbuch von und für Deutschland; oder, Kurze Beschreibung aller Vögel Deutschlands für Liebhaber dieses Theils der Naturgeschichte. 3 Thl. *[2 vols.] 16mo.* Vol. I, pts. 1–2. *pp. xxxiv+550. 39 pl. (col.). index.* Vol. II, pt. 3. *pp. (4)+551–612. 7 pl. (fold.) Leipzig.*

Field-book on birds of Germany. Part 1 (pp. 1–250) on land-birds, with 19 copper plates. Part 2 (253–462) on water-birds, with 20 copper plates, all colored; bird-calendar (465–84); index (485–546); and corrections (547–50). An appendix occupies pp. 455–62 in the second part. Part 3, a separate small volume, with 7 folding plates illustrating heads and feet, contains a second appendix (pp. 551–90), and a chapter of generic diagnoses (591–612) including explanation of the plates.

1811. Kurze Uebersicht aller bekannten Voegel, etc. *Nürnberg.*

1812. Naturgeschichte der Stubenvögel. 3te vermehrte und verbesserte Aufl. *12mo. pp. xxvi+764. 16 col. pl. folding table. T. of c. index. Gotha.*

The third, revised edition, with all the plates colored, of this famous treatise on cage birds.

1812–15. Nachtraege von J. P. A. Leisler. 2 Hefte. *8vo. See also* LEISLER, J. P. A. *Hanau.*

1840. Naturgeschichte der Stubenvögel. 4te vermehrte und verbesserte Aufl. *8vo. pp. 22+[2]+480. pl. Halle.*

1853. Cage and chamber-birds; their natural history, habits, food, diseases, management, and modes of capture. Tr. from the German of J. M. Bechstein, M.D. With considerable additions on structure, migration, and economy, comp. from various sources by H. G. Adams. Incorporating the whole of Sweet's British warblers . . . *sm. 8vo. pp. 16+500. 38 pl. index. London.*

This is the best of the several English translations of Bechstein's *Stubenvögel*, the first edition of which appeared in 1795. The present copy has uncolored plates.
The value of this edition is enhanced by the inclusion of Sweet's *British Warblers*, 1823–9.

[? 1860]. Chamber and cage birds; tr. from the Germ. by W. E. Shuckard. New Ed. by G. J. Barnesby. *8vo. pp. 8+492. col. front. index. several cuts in text. London.*

This is an improvement on several other English translations of Bechstein's famous *Naturgeschichte der Stubenvögel.*

1870. Naturgeschichte der Hof- und Stubenvoegel, etc. 5te Auflage. *8vo. pp. xiv, 358. 8 pl. text illust. Leipzig.*

[? 1879]. Cage birds, their management, habits, diseases [etc.]; tr. from the last Germ., ed. by W. E. Shuckard, rev. and partly rewritten by G. J. Barnesby. *8vo. pp.[2]+232. front. London.*

Except that it has been reset and provided with a new frontispiece (minus the other illustrations) this volume is identical with the (? 1860) edition.

[1881]. The natural history of cage birds; their management, habits, food, diseases, treatment, breeding, and the methods of catching them. [Tr. from the Germ.] New ed. *12mo. pp. 6+311. col. front. 6 col. pl. numerous text cuts. index. London.*

This edition reflects little credit on those who have been concerned in its production, and the Compiler would advise all students to consult this treatise in the original.

BECKHAM, CHARLES WICKLIFFE [1856–88].

1885. List of the Birds of Nelson Co., Ky. Author's reprint (Kentucky Geological Survey). *8vo. Frankfort.*

1887. Observations on the Birds of S.W. Texas. *pp. 64.*

BECKWITH, WILLIAM EDMUND [1844–92].

[1879]. Birds of Shropshire. Reprinted. *8vo. pp. (2)+31+(1)+3+(1)+97–112+129–46. Shrewsbury.*

An annotated list of 224 species.

BEDDARD, FRANK EVERS [1858–].

1885. Collected scientific papers. *See* FORBES, WILLIAM ALEXANDER.

1895. British birds. *See* HUDSON, W. H.

1895. A Text-Book of Zoogeography. *8vo. pp. 8+246. 4 col. maps. Cambridge.*

An excellent treatise, written for the Cambridge Natural Science Manuals.

1898. Elementary practical zoology. *12mo. pp. vi+(2)+210. 93 figs. T. of c. London.*

A guide to elementary zoology.

1898. The structure and classification of birds. *8vo. pp. xx+548. figs. 252. T. of c. index. London.*

A full and thorough treatise on the subject of avian anatomy, with numerous illustrations.

1900. A book of whales. . . . With forty illustrations by W. Sidney Berridge. *8vo. pp. xv, 320. 21 pl. London.*

One of the popular Progressive Science Series, written in this scientific writer's best style.

1902. Mammalia. Cambridge Natural History. *See also* HARMER, S. F., 1895–1909.

An important, scientific and popular contribution to a valuable series of monographs.

BÉDÉ, P., **LAVAUDEN,** L., and **BLANCHET,** A.

1924. Contributions à l'ornithologie Tunisienne pour servir de complément et de supplément aux *Birds of Tunisia. See also* LAVAUDEN, L. and BLANCHET, A.

BEEBE, CHARLES WILLIAM [1877–].

1905. Two bird-lovers in Mexico. Illustr. with photos by the Author. *8vo. pp. xiii+(1)+407+(1). front. 13 pl. 92 figs. T. of c. append. index. Boston.*

Field studies of Mexican bird-life, with a chapter devoted to equipment, etc., used on the journey. The Appendix gives a list of the birds and mammals observed.

[**BEEBE**, C. W. (*contd.*)]

1906. The bird, its form and function. *8vo. pp. 12+496. illust. pl.* (American Nature Ser.) *New York.*

A popular study of the morphology and other characters of the bird as an animal, with remarks on its physiology.

[**1906**]. The log of the sun; a chronicle of nature's year. *8vo. pp. x+(2)+321. front. (col.). T. of c. Garden City, N.Y.*

Fifty-two short essays presenting familiar bird and animal objects from unusual points of view. Portions of the text had already appeared in various American magazines.

1907. The Bird: its Form and Function. *8vo. pp. 11+496. 1 col. pl. figs. in text. London.*

The English edition of a popular work.

**** and **BEEBE**, MARY BLAIR (*née* RICE).

1910. Our search for a wilderness, an account of two ornithological expeditions to Venezuela and to British Guiana. Illustrated with photographs from life taken by the authors. *8vo. pp. xix+(1)+408. front. 160 figs. (2 maps). T. of c. 3 append. index. New York.*

A running account of two private expeditions to northern South America in search of natural history specimens. On the second expedition nearly 300 living birds representing 51 species were brought back and placed in the New York Zoological Park, no less than 33 species being new to the collection. Appendices A and B contain a classified list of the birds observed, with native Indian vernacular names in many cases.

**** with **HARTLEY**, G. INNESS, and **HOWES**, P. G.

1917. Tropical wild life in British Guiana; zoological contributions from the Tropical research station of the New York zoological society. Introduction by Colonel Theodore Roosevelt, vol. I–. *8vo.* Vol. I, *pp. xx+(2)+23–504. front. 143 figs. (4 col., 3 maps). T. of c. index. New York.*

This volume represents the results of the first season's work at the tropical research station near Bartica, British Guiana, from March to August 1916. Invaluable studies were made on the breeding habits, etc., of the Tinamous, Hoatzins, Toucans, Anis, and Jacanas. A less scientific account of the year's work will be found in the author's *Jungle Peace* (1918). It is probable that no further volumes will appear in the present form, the research work being recorded elsewhere.

1918. Jungle peace. Illust. from photos. *8vo. pp. (10)+297. front. 15 pl. T. of c. index. New York.*

A delightful book, telling the same story as the author's *Tropical Wild Life in British Guiana*, 1917, only in a fashion that appeals more directly to the layman. All but three chapters had already appeared in the *Atlantic Monthly*. The copy in hand is the rare first issue, without the introduction by President Roosevelt that appeared in later editions.

1918–22. A monograph of the pheasants. Pub. under the auspices of the New York Zoological Society. *4 vols. 4to.* Vol. I, *pp. xlix+(1)+198. front. (col.). 18 pl. (col.). 16 pl. (photograv.). 5 maps (col.). T. of c.* Vol. II. *pp. xv+(1)+269. front. (col.). 23 pl. (col.). 24 pl. (photograv.). 5 maps (col.). T. of c.* Vol. III, *pp. xvi+204. front. (col.). 23 pl. (col.). 21 pl. (photograv.). 4 maps (col.). T. of c.* Vol. IV, *pp. xv+(1)+242. front. (col.). 22 pl. (col.). 27 pl. (photograv.). 6 maps (col.). T. of c. index. London.*

A monumental and notable modern ornithological work. It embraces a description of all species of pheasants so far known, the author having made special expeditions to obtain his material. The illustrations by such well-known artists as A. Thorbun, L. A. Fuertes, H. Grönvold, G. E. Lodge, H. Jones, Chas. R. Knight, and E. Megargee are very fine, and the photographs of habitat and scenery, taken by the author, add much to the beauty and value of this great work. Six hundred copies only of this edition were printed, of which this copy is No. 263. A smaller edition in two volumes with title *Pheasants their Lives and Homes*, was issued in 1926, the technical descriptions of the birds being omitted, as well as a large number of the colored and uncolored plates.

1919. Jungle peace. *Illust. 8vo. pp. (12)+295. front. 15 pl. T. of c. index. London.*

The English edition of the first issue, New York, 1918, without alterations.

1919. Jungle peace. *Illust. 8vo. pp. (10)+297. front. 15 pl. T. of c. index. New York.*

A reprint of the first edition, N.Y., 1918, published in New York, 1918 (q.v.).

1921. Edge of the jungle. *8vo. pp. (8)+303. T. of c. append. index. New York.*

A second series of essays on jungle life, similar to those in *Jungle Peace*, 1918, and which like them had already appeared in the *Atlantic Monthly* and other magazines. They relate to the same Bartica District in British Guiana in which the Tropical Research Station of the New York Zoological Society is situated.

1922. The edge of the jungle. *post 8vo. pp. (8)+9–237. front. 5 pl. T. of c. append. index. London.*

The English edition—with illustrations—of the original one published in New York, 1921 (q.v.). In this edition no mention whatever is made of the fact that the matter comprising the volume had already appeared as articles in various American magazines, thus leading an English purchaser to imagine he was obtaining a fresh publication. With regard to this somewhat dubious method, see a review of this edition in *Ibis*, July 1922, p. 577.

1924. Galapagos, world's end. With 24 coloured illustrations by Isabel Cooper, and 83 photos., mostly by John Tee-Van. Published under the auspices of the New York Zoological Society. *27 cm. pp. 22+443. col. front. pl. (part col., 1 double). ports. maps.* Bibliography of the more important publications relating to the Galápagos archipelago, pp. 436–8. *New York.*

A record of spontaneous observation, a crystallization of the more obvious and characteristic impressions of the land and sea, of birds, reptiles, fish and insects. *Preface.*

1926. Pheasants, their lives and homes. Published under the auspices of the New York Zoological Society. *2 vols. 4to.* Vol. I, *pp. xxviii+(2)+257. front. (col.). 14 pl. (col., 1 eggs). 19 pl. 1 map. T. of c.* Vol. II, *pp. xv+(3)+309. front. (col.). 16 pl. (col.). 13 pl. T. of c. 2 append. index. Garden City, N.Y.*

In its first form this work appeared in four folio volumes under the title *A Monograph of the Pheasants*, 1918–22, the edition being limited to 600 copies. The present two volumes include all but the technical descriptions of the birds, and are, in effect, a summary of their known natural history, much of which has been rewritten and brought up to date by the inclusion of the most recent discoveries, especially those of M. Jean Delacour in Cochin China. For details of exact distribution, and intensive descriptions of plumages, evolution, etc., it is necessary to refer to the larger work. The colored illustrations, which are very fine, are by Thorburn, Grönvold, Fuertes, Knight, Lodge, and Jones. The present copy is of the first edition after the printing of 201 *de luxe* copies.

[**1927**]. Jungle days. Col. jacket and lining painted by Isabel Cooper. *Illust. 8vo. pp. vi+205. front. 9 pl. T. of c. index. New York.*

A delightful account of the smaller animals and insects, etc., discovered by the author around his British Guiana laboratory. References to birds are scattered throughout the volume.

1927. The Log of the Sun. *1 vol. 8vo. New York.*

Apparently a reissue of the first edition, 1906.

1927. Pheasant jungles, with sixty illust. *8vo. pp. xiii+248. front. 57 pl. T. of c. index. New York.*

An outcome of the author's larger work, *A Monograph of the Pheasants*, 1918–22. The present work records a few of the author's adventures in the Far East. There are many references to pheasants, and the nest and eggs of the Himalayan Nutcracker is portrayed, but there are no illustrations of pheasants.

⇒ Beeton, (188-) Dictionary of natural history. front., illus.

BEEBE, *Mrs.* M. B. *See* BEEBE, CHARLES WILLIAM, 1910.

BEECHEY, FREDERICK WILLIAM [1796–1856].

1839. The Zoology of Capt. Beechey's voyage to the Pacific and Behring's Strait . . . in H.M.S. Blossom . . . 1825–28. *4to. pp. 12+186. 44 col. pl. 3 col. maps.* *London.*

Of this famous scientific expedition J. Richardson described the mammalia, N. A. Vigors the ornithology, G. T. Lay and E. T. Bennett the fishes, and J. E. Gray the reptiles and batrachians.

BEETHAM, BENTLEY.

1910. The home-life of the spoonbill, the stork and some herons. *8vo. pp. viii+47+(5). 32 pl. (35 figs.). T. of c.* *London.*

Illustrated by 35 fine photographs mounted on 16 leaves at the end of the volume.

1911. Photography for bird-lovers: a practical guide. *8vo. pp. (8)+126. front. 15 pl. 4 figs. T. of c. index.* *London.*

A practical manual of Bird-photography dealing with every phase of the subject, including instructions for color photography and cinematographic work. The subject of apparatus is considered at considerable length, based on the author's ample experience which should prove useful to beginners in securing a proper equipment at the outset.

1927. Among our banished birds. *8vo. pp. xi+(1)+227. front. 15 pl. T. of c.* *London.*

A charming account (with many fine photographs) of the author's wanderings in Europe for the purpose of studying numerous colonies of birds which formerly bred in the British Isles, and would probably do so again if they could find sanctuary there. They include the Avocet, Spoonbill, Black-tailed Godwit, Black Tern, Black-winged Stilt, Pratincole, Kentish Plover, Buff-backed Heron and Egret.

BEETON, SAMUEL ORCHART [1831–77].

n.d. Book of birds, showing how to rear and manage them in sickness and in health. Cheap edition. *8vo. pp. xii+352. front. (col.) 5 pl. (col.). 96 figs. T. of c.* *London.*

BEHN, D. H. *See* KLEIN, J. TH., 1760.

BEHNING, ARVID.

1928. Das Leben der Wolga; zugleich eine Einführung in die Fluss-Biologie. *8vo. pp. 6+162. illust.* *Stuttgart.*

Bibliography, pp. 142–7.

BEIBLATT ZUM JOURNAL FUER ORNITHOLOGIE. *See* JOURNAL FUER ORNITHOLOGIE; *also* ORNITHOLOGISCHE MONATSBERICHTE.

BEILBY, RALPH [1744–1817].

1790. A general History of Quadrupeds. The textual part of Bewick's treatise. *8vo.* (Wanting.)

The first of many printings.

1797. A History of British Birds. Vol. I, Land Birds. The illustrations by T. Bewick. *4to. pp. 6+30+335.* *Newcastle.*

This is the very rare, first edition (no copy in the Br. Museum library) of the text intended to describe Bewick's woodcuts. The same author wrote the corresponding text for Bewick's Quadrupeds. *See* BEWICK and BEILBY.

1797. History and description of land birds. *pp. 6+30+335. illust.* (*in* Bewick, Thomas, 1753–1828, *History of British Birds,* 1797–1804, vol. 1). *Newcastle.*

1809. History and description, etc. Third edition.

1821. History and description, etc. Fifth edition. History and supplement with additional figures. *pp. 51+330.* *Newcastle.*

1832. History and description, etc. Seventh edition.

1847. History and description, etc, Eighth edition.

BEITRAEGE ZUR FAUNA SINICA. **1922–***date.* *Berlin.*

BEITRAEGE ZUR FORTPFLANZUNGSBIOLOGIE DER VOEGEL MIT BERÜCKSICHTIGUNG DER OOLOGIE. *Berlin.*

Herausgegeben von Dr. L. von Boxberger, Berlin. Issued every two months. Vol. I, No. 1, Sept. 1924. Vol. I, No. 2, Nov. 1924, and continuation.

A periodical devoted to observation and report of the habits of birds—their biology in the restricted sense. The list of contributors to this serial and the titles of the papers point in the direction of a want that is being filled for the first time in the history of avian periodical literature. Dr. Ernst Hartert furnishes notes on the nesting habits of Desert Birds; Prof. H. Krohn speculates on the recognition of sex by birds; Count O. von Zedlitz has a paper on the nesting habits of *Mergus merganser* in Sweden; and there are many interesting articles on breeding habits by well-known observers and writers.

BEITRAEGE ZUR NATURGESCHICHTE OSTASIENS. *Munich.*

1906–*date.* Supplement to K. Bayerische Akademie der Wissenschaften Math. Phys. Klasse—Abhandlungen.

BEITRAEGE ZUR NATURGESCHICHTE DES SCHWEIZERLANDS. **1775.** (Wanting.) *Bern.*

BEITRAEGE ZUR NATUR- UND HEILKUNDE. **1825–6.** *Wurzburg, Nuremberg.*

BEITRAEGE ZUR NATUR- UND KULTURGESCHICHTE LITHAUENS UND ANGRENZENDER GEBIETE. *Munich.*

1912–*date.* Supplement to K. Bayerische Akademie der Wissenschaften. Math. Phys. Klasse—Abhandlungen.

BEITRAEGE ZUR NATURKUNDE. *Kiel.*

1805–10. Continues Archiv für die Systematische Naturgeschichte.

BEITRAEGE ZUR NATURKUNDE PREUSSENS. (**Physik-oekonomische Gesell. Königsberg.**) **1868–1912.**

BEITRAEGE ZUR NATURKUNDE UND DEN DAMIT VERWANDTEN WISSENSCHAFTEN. **1787–92?** (Wanting.) *Hanover, Osnabrück.*

BEITRAEGE ZUR NORDWESTDEUTSCHEN VOLKS- UND LANDESKUNDE. **1895–1901.** *See also* NATURWISSEN. VEREIN ZU BREMEN. *Bremen.*

BEITRAEGE ZUR RHEINISCHEN NATURGESCHICHTE. **1849–53.** *Freiburg.*

BEITRÄGE ZUR ZOOGEOGRAPHIE DER PALÄARKTISCHEN REGION. Herausgegeben von der Ornithologischen Gesellschaft in Bayern.

1919. *Tinted Wrappers. 8vo.* Heft I. Sept. 1919. *pp. 56. 1 map. T. of c.* (all pub.). *München.*

The contents of the first part are two carefully written articles by Erwin Stresemann on the geographical distribution of several palaearctic species.

BEKKER, C. W. and **others.**
[1800]–17. Teutsche Ornithologie. *See* BORKHAUSEN, M. B.

******, LICHTHAMMER** (et al).
1837–41. Deutsche Ornithologie oder Naturgeschichte aller Vögel Deutschlands, etc. *74 col. pl. Stuttgart.*

BELANY, JAMES COCKBURN.
1841. A treatise upon falconry. In two parts. *8vo. pp. vii+(5)+277+(1)+6. front. Berwick-upon-Tweed.*

Part 1 of this work contains observations upon the nature, antiquity, and history of falconry, that of part 2 notices of the different hawks used in British hawking, the proper method of keeping, training, and flying the birds, and the apparatus belonging to the art. A glossary of terms used in falconry is given at the end of the book.

BELCHER, W. J. *See* ORIGINAL DRAWINGS, BELCHER, W. J.

BELDING, LYMAN.
1890. Land birds of the Pacific district. (California Academy of Sciences.) *8vo. pp. (4)+274. append. index.* Author's reprint. *San Francisco.*

An annotated list of the 295 species known to occur in the district, which embraces California, Oregon, Washington, and Nevada. It was prepared originally as a report submitted to the U.S. Dept. of Agriculture and consists of the author's own observations on the arrival and departure of migrating species, as well as those of other workers.

BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY. *Belfast.*
1871/2–*date*. Proceedings and Reports.

1924. Centenary volume, 1821–1921; a review of the activities of the society for 100 years with historical notes, and memoirs of many distinguished members, ed. by Arthur Deane. *8vo. pp. 8+212. portr. pl. Belfast.*

BELFAST NATURALISTS' FIELD CLUB.
1863–*date*. Annual Report and Proceedings.

BELGIUM. Commission de la 'Belgica'.
1901–13. Résultats du Voyage . . . en 1897–9, etc. Vols. I–X. *4to. Anvers.*

Relatively few vertebrates were collected and described. Fishes were examined by L. Dollo, 1904, pp. 240, 10 pl., 2 col. maps; cetaceae by E. G. Racovitza, 1903, pp. 142, 4 pl., figs. in text; seals (in English) by G.'E. H. Barrett-Hamilton, 1901, pp. 19, 1 pl.

BELL, F. J.
1878. On certain variations in the vocal organs of the Passeres, etc. *See* MÜLLER, JOHANNES.

BELL, THOMAS [1792–1880].
1837. A history of British quadrupeds, including the *Cetacea*. 200 woodcuts. *8vo. 22½ cm. pp. xviii, 526. illust. London.*

An excellent early treatise. The present copy has ten pages of MSS. by H. Kirke Swann.

1839–43. *See* ZOOLOGY OF THE VOYAGE OF H.M.S. BEAGLE.

1839. A history of British Reptiles, etc. *8vo. pp. 14+142. London.*

A useful and early work on British herpetology.

1874. A history of British quadrupeds, including the cetacea. 2nd ed., rev. and partly rewritten by the author, assisted by R. F. Tomes and E. R. Alston. *8vo. pp. 18+474. illust. London.*

1877. The natural history and antiquities of Selborne. *See* WHITE, *Rev.* GILBERT.

BELLAMY, FRANK ARTHUR.
n.d. A Historical Account of the Ashmolean Natural History Society of Oxfordshire, 1880–95.

BELLAMY, JOHN CREMER [1812–54].
1839. The natural history of South Devon. *8vo. pp. xxvi+(2)+viii+455. 80 engrav. 9 lithogr. 5 maps (fold.). T. of c. index. Plymouth.*

BELLONIUS, P. (**BELON,** PIERRE) [1517–64].
1553. De aquatibilibus libro duo, cum eiconibus ad vevam ipsorum effigiem, quoad eius fieri potuit, expressis. *4to. With many contemp. col. woodcuts. Paris.*

1553. Petri Bellonii Cenomani De aquatilibus, libri duo cum ει conibus ad viuam ipsorum effigiem, quoad eius fieri potuit, expressis . . . *12×17 cm. pp. 16+448. illust. Parisiis.*

Belon is looked upon as the founder of modern ichthyology as well as an authority on ornithology. The illustrations of fishes and some other aquatic animals in this volume are of exceptional quality for the sixteenth century, although some of them are fanciful.

1555. L'histoire de la natvre des oyseavx, avec levrs descriptions, & naïfs portraicts retirez dv natvrel: escrite en sept livres, par Pierre Belon du Mans. *folio. pp. 28+381. illust. Paris.*

On pp. 40 and 41 are the portraits of the skeletons of man and bird to show the affinity between them. This is one of the earliest illustrations of comparative anatomy. Belon was the first to attempt to identify the names of birds given by Aristotle and by Pliny with those current in France.

1555. La Nature et Diversité des Poissons, avec leurs portraicts, etc. *pp. 448. Paris.*

A companion work to his remarkable, original and early treatise on the comparative anatomy of birds.

1605. Plurimarum singularium et memorabilium rerum in Graecia, Asia, Ægypto, Judaea, Arabia, aliisque exteris provinciis ab ipso conspectarum observationes tribus libris expressae. Carolus Clusius Atrebas e Gallicis Latinas faciebat, et denuo recensebat. Altera ed., longe castigator, et quibusdam scholiis illustrata. *folio. pp. [12]+242+[30]. illust. Antverpiae.*

BELT, THOMAS [1832–78].
1874. The naturalist in Nicaragua: a narrative of a residence at the gold mines of Chontales; journeys in the savannahs and forests. With observations on animals and plants in reference to the theory of evolution of living forms. *8vo. pp. xvi+403. front. 3 pl. 23 figs. 1 map (col. fold.). T. of c. index. London.*

References to birds are scattered throughout this volume, with five illustrations of them.

1888. The naturalist in Nicaragua. *Second edition.* Revised and corrected. With map and illustrations. *8vo. pp. xxxii+403. front. (portr.). 3 pl. 23 figs. 1 map (col. fold.). T. of c. index. London.*

A revised and corrected edition of the first issue of 1874. The intrinsic merits of the book, of which Darwin spoke so highly, resulted in this second edition, after the death of the author in 1878.

←Belcher, C.F. 1930. Birds of Nyasaland. London.

1557. Portraits d'Oyseaux. Paris.

←Bell, R.N. 1860. Knowledge of living things. col. front., col. pls. cuts. New York.
←Belogolowy, J. 1910. Zur entwicklung der Kopfnerven der Vögel. 9 pls.

←1849. History of British reptiles. 2d ed. xxiv+159 p. London.

→ Special Bulletin No. 1, U.S. Nat. Mus.

→ Beneden, E. van. 1869-70. Rech. s. l'embryol. d. Crustacées. 4pts., 5 pls.

→ Bennitt, Rudolf. 1932 Check-list of the birds of Missouri
Univ. of Missouri studies, 7, No. 3. July 1st 1932.

BELVALLETTE, ALFRED.

1903. Traité de fauconnerie et d'autour-série, suivi d'une étude sur la pêche au cormoran. *4to. pp. (12)+269. 34 pl. 52 figs. T. of c. Evreux.*

A treatise on falconry and on the art of training the goshawk and sparrowhawk, with a dictionary of words used in falconry.

BEMMELEN, J. A. VAN.

1869–71. Jaarbericht van de Rotterdamsche Diergaarde over 1868–71. *8vo.* (Wanting.) *Rotterdam.*

BENDIRE, CHARLES EMIL [1836–97].

1891. Directions for collecting, preparing and preserving birds eggs and nests. *4to. pp. [10]. illust.* Separate U.S. National Museum. Bulletin, pt. D, no. 29. *Washington.*

A very useful and popular tract for the purpose indicated.

1892–5. Life histories of North American birds, [from the parrots to the grackles,] with special reference to their breeding habits and eggs. *2 vols. 4to.* Vol. I, *pp. viii+446. 12 pl. (col. eggs). T. of c. index.* Vol. II, *pp. ix+(1)+518. 7 pl. (col. eggs). T. of c. index. Washington.*

Owing to the death of the author these two volumes are all that were published of Bendire's great work, which is now being continued by A. C. Bent (q.v.). Detailed accounts of habits and nidification were based mostly on the author's personal observations, with copious notes from other sources making the work at the time the most authoritative in its particular line. The second volume, although not so indicated on the title-page, is Special Bulletin No. 3 of the U.S. National Museum.

1893. The Cowbirds. *Illust.* (U.S. Nat. Museum.) Author's separate.

BENDYSCHE, THOMAS. **1865.** *See* BLUMENBACH, JOHANN FRIEDRICH.

BENECKE, B. A. and **KUPFFER,** C. W. VON.

1879. Photogramme zur Ontogenie der Vögel. *4to. pp. 48. 15 pl.*

This important contribution to avian embryology forms part of vol. XLI, *Nova Acta, Academia Caesarea.*

BENEDEN, ÉDOUARD VAN [1846–1919].

1870. Recherches sur la composition et la signification de l'Œuf, etc. *4to. pp. 283. 12 pl. Brussels.*

This essay on the egg was originally published as a *Mémoire couronné* by the *Académie Royale des Sciences,* Vol. 34.

BENEDEN, PIERRE JOSEPH VAN [1809–94].

1889. Histoire Naturelle des Cétacés des Mers d'Europe. *8vo. Bruxelles.*

Originally published by the *Académie Royale des Sciences* as a *Mémoire couronné.*

BENGAL. *See* ASIATIC SOCIETY OF BENGAL.

BENISON, H. W. S. WORSLEY-. *See* WORSLEY-BENISON, H. W. S.

BENNETT, EDWARD TURNER [1797–1836].

1829. The Tower menagerie: comprising the natural history of the animals contained in that establishment; with anecdotes of their characters and history. Illustrated by portraits of each, taken from life, by William Harvey; and engraved on wood by Branston and Wright. *London.*

A famous descriptive catalogue but not of much scientific value.

1830–1. The gardens and menagerie of the Zoological society delineated. *2 vols. 8vo. illust. Chiswick.*

CONTENTS. Vol. 1. Quadrupeds. 2. Birds.

BENNETT, FREDERICK DEBELL.

1840. Narrative of a Whaling Voyage, etc. *2 vols. 8vo. London.*

BENNETT, GEORGE [1804–93].

1834. Wanderings in New South Wales, Batavia, Pedir coast, Singapore, and China; being the journal of a naturalist in those countries, during 1832, 1833, and 1834. *2 vols. in 1. 8vo.* Vol. I, *pp. (4)+vii–xv+(3)+440. front. 5 figs. T. of c.* Vol. II, *pp. vii+(1)+428. front. 2 figs. T. of c. append. London.*

The results of a series of excursions into the interior of New South Wales, the author having limited himself to notes taken at the instant of observation. References to birds are numerous.

1837. Catalogue of . . . Natural History . . . in the Australian Museum. *8vo. Sydney.*

1860. Gatherings of a naturalist in Australasia; being observations principally on the animal and vegetable productions of New South Wales, New Zealand, and some of the Austral Islands. *8vo. pp. xii+456. front. (col.). 7 pl. (col.). 24 figs. T. of c. London.*

An interesting account of the author's observations on the flora and fauna of Australasia, in which birds figure largely, at least half of the 23 chapters containing references to the class Aves, whilst one of the colored plates depicts the Australian Jabiru.

n.d. On the avi-fauna of New Guinea. With particular reference to the birds of paradise inhabiting that and the adjacent islands. *8vo. pp. 8. Sydney.*

BENNETT, JAMES V.

1919. The passenger pigeon in Pennsylvania, &c. *See* FRENCH, J. C.

BENNETT, JOHN WHITCHURCH.

1834. A Selection . . . of the Fishes found upon the coast of Ceylon. *4to. 30 col. pl. London.*

This is the second edition of a well-known and important treatise. The first edition appeared in 1830.

1841. A Selection of Rare and Curious Fishes found upon the Coast of Ceylon. 3rd ed. *4to. col. pl.*

1851. Selection of Rare and Curious Fishes found upon the Coast of Ceylon, from Drawings made in that Island. *4to. 30 fine plates (printed in brown).*

A revised edition of this valuable work.

BENOIT, LUIGI [1804–90].

1840. Ornithologia Siciliana; o sia, Catalogo ragionato degli uccelli che si trovano in Sicilia. Two indexes, one of French, the other of Sicilian names of the birds. *8vo. pp. 8+231. Messina.*

A rather good account, including synonymy, habits, and characters of the birds of Sicily.

BENSON, CHARLES WILLIAM [*nat.* 1836].

1901. Our Irish song birds. Second edition. *8vo. pp. xv+206. T. of c. 5 pl. Dublin.*

The first edition of this popular work was published in 1886.

BENSUSAN, SAMUEL LEVY [1872–].

1908. The heart of the wild, nature studies from near and far. Illust. (photos.). *12mo. pp. xi+(1)+297. front. 7 pl. T. of c. London.*

A series of stories that, in each instance, end with the violent death of the bird or beast whose life-story is set out. The birds selected are the Golden Eagle, Red Grouse, Flamingo, Cuckoo, and White Stork.

BENT, Arthur Cleveland [1866–].

1912. A new subspecies of crossbill from Newfoundland. *4to. pp.* [2]+*3.* (Smithsonian Miscell. Collections, vol. 60, no. 15.) Author's separate.

1919. Life histories of North American diving birds. Order Pygopodes. *8vo. pp. xiv+245. 55 pl., 12 col.* (*eggs*). *index.* (Smithsonian Institution, U.S. Nat. Mus. Bulletin 107.) *Washington.*

The above is written as a continuation of the work begun by Major Charles E. Bendire in his *Life Histories of North American Birds*, and forms a most useful and interesting introduction to the author's other monographs. He was fortunate in having many voluntary contributions to his series from all parts of America.

1921. Life histories of North American gulls and terns; order Longipennes. *8vo. pp. x+345. 93 pl.* (*17 col. eggs*). *index.* (Smithsonian Institution, U.S. National Museum. Bulletin 113.) *Washington.*

One of the excellent monographs by this author.

1922. Life histories of North American petrels and pelicans and their allies; order Tubinares and order Steganopodes. *8vo. pp. xii+343. 69 pl. T. of c. index.* (Smithsonian Institution, U.S. Nat. Mus. Bulletin 121.) Author's separate. *Washington.*

This systematic monograph, one of a most important series by the author, is intended to cover the life-histories of American birds.

1923. Life histories of North American wild fowl. Order Anseres. *8vo. pp. x+245. 46 pl. index.* (Smithsonian Institution, U.S. National Museum Bulletin, no. 126.) *Washington.*

This author's separate is the first edition of the fourth series on the histories of North American birds.
The volume discusses the Anatidae as far as *Perissonetta collaris*. For a continuation see the second edition, 1925. The plates are excellent.

1925. Life histories of North American wild fowl. Order Anseres. *8vo. pp. x+376. 60 pl. index.* (U.S. National Museum. Bulletin no. 130.) *Washington.*

The continuation of the first edition, dated 1923, of these excellent monographs. The life-history of the Anatidae is carried to and includes *Cygnus buccinator*. There is an extensive bibliography, pp. 302–12.

1926. Life histories of North American marsh birds. Orders Odontoglossae, Herodiones and Paludicolae. *8vo. pp. xi+490. front. 97 pl. T. of c. index.* (U.S. Nat. Museum. Bulletin 135. Author's reprint.) *Washington.*

The sixth volume of this series, the treatment following exactly the same plan as previously established. The 98 plates contain some very fine examples of bird photography. Dr. Chas. W. Townsend prepared five of the life-histories, T. E. Penard that of the Scarlet Ibis, whilst the Rev. P. B. Peabody is responsible for much of the account of the Yellow Rail.

1927. Life histories of North American shore birds. Order Limicolae (Part 1). *8vo. pp. ix+*(*1*)+*420. front. 54 pl. T. of c. index.* (Bull. 142, U.S. Nat. Museum. Author's separate.) *Washington.*

The seventh volume of the *Life-Histories of North American Birds*, covering about half of the Shore-birds (from Scolopax to Totanus) in the sequence of the A.O.U. 'Check-List'. Many of the life-histories of the rarer shore-birds are adequately presented for the first time; the illustrations are, as usual, excellent.

BENTHAM, Howard.

[**1925**]. The pocket book of British birds. *See* Kearton, R.

BERAJAH, ZOOGRAPHIA INFINITA.

1905–*date.* Edited by O. Kleinschmidt. Pub. by W. Schluter, Halle. Irregular arrangement of text and pagination. Variously colored wrappers. *4to.* Current. Many colored and other plates and maps.
Falco (q.v.) published as a supplement; the issue in 1906. All issues except the first are unnumbered and the paging of each is, not to use a stronger term, 'peculiar'.
Lieferung I. 1905. *22 pp. 10 pl., mostly colored.* (Saxicola Borealis.)
[Lieferung II.] 1906. *20 pp. 10 pl., mostly colored.* (Strix Flammea.) Supplement. *2 pp.* Pub. by Erwin Nagele, Leipzig.
[Lieferung III.] 1907. *6 pp. 3 pl., 2 colored.* (Strix Athene.)
[Lieferung IV.] 1907/8. *12 pp. 7 pl., 5 colored. 1 table.* (Erithacus Domesticus.)
[Lieferung V.] 1908. *8 pp. 1 table.* (Aufang und Ende.) Second sub-title: 'Eine Naturgeschichte und Naturgeographie auf Kantscher Basis'. Pub. by Gebauer—Schwetschke, Halle.
[Lieferung VI.] 1908. *2, 4, 2, 1, 2, 2 pp. 4 col. pl.* (Subgenus Phoenicurus, etc.) Second sub-title omitted.
[Lieferung VII.] 1908. *14 pp. 3 col. and 1 black pl.* (Erithacus Arboreus.)
[Lieferung VIII.] 1909. *2 pp. 1 col. and 1 black pl.* (Erithacus Sialia.)
[Lieferung IX.] 1909/10. *40 pp. 26 black pl.* (Corvus Nucifraga.)
[Lieferung X.] 1911. *4, 4, 4 pp. 8 pl., 3 colored.* (Various.)
[Lieferung XI.] 1912. *6, 6 pp. 9 pl. col.* (Falco Peregrinus.)
Lieferung XII. 1913. *16, 4 pp. 11 col. and black pl.* (Various.)
Lierferung XIII. 1914. *7–22 pp. Pl. IV–XXVII, colored.* (Continuation of Falco Peregrinus.) *illust. text.*
Lieferung XIV. 1915. *23–30 pp. Pl. XXXII–XXXV, 2 colored.* (Continuation of Falco Peregrinus.)
Lieferung XV. 1916. *31–8, 2 pp. 3 pl., 2 colored.* (Various.)
Lieferung XVI. 1917. *47–54 pp.* (Falco Peregrinus.)
Lieferung XVII. 1918. *55–62 pp. illust. in text.* (Falco Peregrinus.)
Lieferung XVIII. 1919/20. *7–14 pp. 2 col. pl.* (Parus Salicarius.)
Lieferung XIX. 1920. *63–78, 2, 2, 2, 2 pp. 8 pl., 3 colored.* (Various.)
Lieferung XX. 1921. *15–31 pp. illust. in text.* (Parus Salicarius.)

Under the date of 1908 (Seite I), title 'Aufang und Ende', and elsewhere the Editor defines the meaning and scope of this remarkable serial-periodical as, briefly, an attempt to correlate the science and art of Kant with the concepts of modern science. In particular he studies the effect of locality on the different races—especially of birds—and dwells much on the various avian phases as influenced by geographical distribution. To the average reader *Berajah* (and *Falco*) will appear as a collection of scientific essays tinged with transcendentalism. However, few periodicals are so magnificently and sympathetically illustrated and so beautifully printed. The great majority of the contributions are from the pen of the editor. The initial capital letter of the specific names is the editor's choice.

BEREZOVSKIĬ, Mikhail Mikhaĭlovich.

1891. Aves expeditionis Potanini per provinciam Gan-su et confinia 1884–87, auctoribus M. Berezowski & V. Bianchi. *folio. pp.* [2]+*40*+*155. illust. pl.* In Russian. *St. Petersburg.*

← Bent, A.C. 1932. Life histories of North American gallinaceous birds. 800.
(Bull. 162, U.S. Nat. Museum)

→ Bericht üb d. Fortschritte d. Anatomie u. Physiologie. 1856-71.

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→ Berg, Bengt. 1930. To Africa with the Migratory Birds. 75 Illus.
Royal 8vo, cloth, 274 pages. New York.

→ Berg, B. u.d. Stora Karlsö. En bok om Lapoets o foglar. 401 p. pls. Stockholm.

→ Bergendahl, 1902-03. Studien über Mesenterium. 6 pls.

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BERG, BENGT (BENT) MAGNUS KRISTOFFER [1885–].

1916. Sällsynta fåglar. Långnabban. Första Samlingen. *4to. pp. 32. 15 photopl. Stockholm.*

A well-illustrated description (in Swedish) of the following Longbills: *Limosa aegocephala, Podiceps auritus, Sterna nigra,* and *Larus minutus,* with their native names. The monograph is a repaged excerpt with a separate title, the copy in hand from the Reichenow collection presented by the author.

1916. Sällsynta Fåglar. Dvärgmåsen. *4to. pp. 77–145. map. 29 photoplates. Stockholm.*

A continuation of the author's Swedish monographs on shore and sea-birds. The present volume is from Prof. Reichenow's library.

1919. Sällsynta Fåglar. Andra Samlingen. *4to. pp. 342. 61 photoplates. Stockholm.*

A repaged and entitled excerpt on Swedish sea-birds. This volume deals with Skräntärnan (*Sterna caspia*), Dvärgtärnan (*Sterna minuta*), and Grågåsen (*Anser cinereus*). The large photo illustrations are excellent. The present copy is *ex libris* Prof. Reichenow.

1920. Hägrarnoch Storkar; en Bok om skånska Fåglar. *4to. pp. 268. col. front. col. illust. on wrapper. 64 pl. (2 col.). Stockholm.*

A popular monograph on the storks and herons of Northern Europe with excellent plates.

1925. Mit den Zugvögel nach Afrika. *132 illust. Berlin.*

Second edition of a popular work on migration. An English translation by F. R. Barton was issued in 1931.

1927. Mein Freund der Regenpfeifer. Vierte Auflage. [Tr. from the Swedish by Edmund Herms.] (Bengt Berg's *Illustrierte Tierbücher.*) *pp. 111+(1). vignette (portr.). 73 figs. Berlin.*

A translation from the Swedish (fourth edition) of the genial story of the Dotterel (*Eudromias* or *Charadrius morinellus*), the Lahol of the Lapps, in its northernmost haunts. Richly illustrated from excellent photographs.

1928. Tookern, der See der wilden Schwäne; [tr. from the Swedish by Edmund Herms]. (Bengt Berg's *Illustrierte Tierbücher.*) *8vo. pp. 222. illust. Berlin.*

? **1928.** Die letzten Adler.

One of several popular books by this scientific writer.

BERGENS MUSEUM, NORWAY. *Bergen.*

1883–*date.* Aarbog.

1892–1930. Aarsberetning.

1901–6. Meeresfauna.

1847–9. Skirner.

1883–1905. Skrifter. Series 1.

1909–*date.* Skrifter. New series.

BERGSON, HENRI LOUIS [1859–].

1913. Creative Evolution. Trans. by Arthur Mitchell. *8vo.* [O.] *London.*

BERGTOLD, WILLIAM HARRY [1865–].

1917. A study of the incubation periods of birds; what determines their lengths. *8vo. pp. 109. bibliogr. Denver, Col.*

These pages give the results of a detailed study of this phase of bird physiology, from which the author concludes that 'a bird's temperature determines or fixes the time of its incubation period'—the higher the temperature the shorter the period. This copy is a presentation from the author to Dr. Casey Wood.

BERICHT DER BAMBERG. Naturforsch. Gesellschaft. 1852–*date.* *See* BAMBERG.

BERICHT DER BASEL. Naturforsch. Gesellsch. 1834–*date.* *See* BASEL.

BERICHT DER BAUTZEN. Naturwissensch. Gesellschaft. 1896–*date.* *See* BAUTZEN.

BERICHT DER BAYREUTH. Naturwissensch. Gesellschaft. 1911–14. *See* BAYREUTH.

BERICHT D. CHEMNITZ. Naturwissenschaft. Gesellschaft. 1859–*date.* *See* CHEMNITZ.

BERICHTE DER DEUTSCH. ORNITH. GESELLSCHAFT.

1840–*date.* *See* DEUTSCHE ORNITH. GESELLSCHAFT.

BERICHTE D. FREIBURG IN BREISGAU. Naturforschende Gesellschaft. 1886–*date.* *See* FREIBURG IN BREISGAU.

BERICHTE D. KGL. ZOOLOG. . . . MUSEUMS ZU DRESDEN. 1886–*date.* *See* DRESDEN.

BERICHTE ÜBER DIE MITTEILUNGEN VON FREUNDEN DER NATURWISSENSCHAFTEN IN WIEN. 1846–50. *Vienna.*

BERICHTE D. MUSEUMS FÜR TIERKUNDE UND VÖLKERKUNDE ZU DRESDEN. 1886–*date.* *See* DRESDEN.

BERICHTE DER NATURWISSENSCHAFTL. VEREIN DES HARZES ZU BLANKENBURG. 1840–62. *See* BLANKENBURG.

BERICHTE VEREINS SCHLESISCHER ORNITHOLOGEN. Published for the Society at Neisse. Paul Kollibay, Editor.

1904–12. *8vo.* 5 Berichte. All issued? Tinted, pictured covers. The parts were published the year following that covered by the review.

Erster Bericht (1904–5). *30 pp. T. of c.*
Zweiter Bericht (1906–7). *28 pp. T. of c.*
Dritter Bericht (1908–9). *80 pp. T. of c.*
Vierter Bericht (1910–11). *66 pp. T. of c.*
The first half of 1911 is reviewed in this volume.
Fünfter Bericht (1911, Second half, 1912). *88 pp. T. of c.*

As the title implies, these *Berichte* record mainly the local activities of the Silesian Society of Ornithologists. Among the contributors are the Editor, J. H. Klopfer, C. Zimmer, G. Martini, and Borrmann.

BERICHTE ÜBER DIE VERHANDLUNGEN. FREIBURG IN BREISGAU. Naturforschende Gesellschaft.

1858–85. Continued as Berichte, etc. *See* FREIBURG IN BREISGAU.

BERICHT ÜBER DIE LEISTUNGEN IN DER NATURGESCHICHTE DER VÖGEL WÄHREND DES JAHRES 1857–1870. By G. Hartlaub, Bremen; 1889–93, by Dr. Reichenow, Berlin.

Although the yearly review of von Pelzeln bridges (in the E.S.W. Library) the void between the separately published extracts above noted it has nothing to do with the *Archiv für Naturgeschichte* from which the latter are (with the pagination of the journal) printed. The periodical status of this and similar annuals is discussed in the introduction to this *Catalogue*.

BERICHT DER NATURHISTORISCHER VEREIN, AUGSBURG.
1848–*date*. *See* AUGSBURG.

BERICHT D. NATURWISSENSCHAFTL. VEREIN F. BIELEFELD U. UMGEBD.
1908–*date*. *See* BIELEFELD.

BERICHT D. ORNITHOL.-OÖLOG. VEREINS ZU HAMBURG.
1897–1903. I. u. II.

A rare periodical, but of small scientific importance.

BERICHT ÜBER DIE OSTERREICHISCHE LITERATUR DER ZOOLOGIE, BOTANIK UND PALEONTOLOGIE.
1850–3. *Vienna.*

BERICHT ÜBER DAS PERMANENTE INTERNATIONAL ORNITHOLOGISCHE COMITÉ UND ÄHNLICHE EINRICHTUNGEN IN EINZELN LÄNDERN. *See also* ORNIS, and PROCEEDINGS OF THE INTERNATIONAL CONGRESS OF ORNITHOLOGY.

As in the case of other societies the Permanent Committee of the International Ornithological Congress (or some other member of it) occasionally printed a report of the Proceedings apart from that appearing in the official organ—which in this instance is *Ornis*. The following are examples of these *Berichte*:
I. Bericht. Blasius and Hayek. *64 pp.*
II. Bericht. Blasius and Hayek. *48 pp.* Another II. Bericht by Blasius alone. *58 pp.*
V. Bericht. 1891–5. Prof. Blasius. *27 pp.*

BERICHT ÜBER DIE TÄTIGKEIT DER 'HRVATSKE ORNITHOLOŠKA CENTRALA'. *See* HRVATSKE ORNITHOLŠKA CENTRALA.

BERICHT UND ÜBERSETZUNG. Aus der ornithologischen Literatur Russlands. 1919?
See AUS DER ORNITHOLOGISCHEN . . . RUSSLANDS.

BERICHT D. VEREIN F. NATURKUNDE ZU CASSEL. 1860–94. *See* CASSEL.

BERICHT UEBER DIE (JAHRES-) VERSAMMLUNG DER DEUTSCHEN ORNITHOLOGEN-GESELLSCHAFT.
1840–*date*. Nr. 1–21, 1840–75; [Second series] *Bericht ueber die (Jahres) Versammlung der Allgemein Deutschen Ornithologen Gesellschaft 1877.*

Although the *Journal für Ornithologie* and its forerunner *Naumannia* have since their inception been the organs of the Deutsche ornithologen-Gesellschaft, and many of the papers and proceedings are regularly reported in those periodicals, yet almost every meeting is in addition reviewed more or less fully by one of its officers—usually by the president—and issued as an independent report under the style of a *Bericht*. Together these form a separate series that are very useful to the advanced student, containing as they do papers from the pen of the most accomplished of European ornithologists. The following are examples:
1860. Bericht über die XIIIte Versammlung der deutschen Ornithologen, *pp. 104*. Stuttgart. By Baldamus.
1862. Bericht über die XIIIte Versammlung der deutschen Ornithologen, *pp. 108*. Halberstadt and Brunswick. Baldamus.
1869. Bericht ueber die XVIIte Versammlung der deutschen Ornithologen-Gesellschaft. Cassel, bei Th. Fischer. 1869.
1870. Bericht ueber die XVIIIte Versammlung—zu Hannover und Hildesheim, Juni, 1870—vom Vorsitzendem Baron Droste. Published in Muenster.
1872. Bericht ueber die XIX. Versammlung der deutschen Ornithologen-Gesellschaft zu Cassel. 1872.
1873. Bericht ueber die XX. Versammlung–Braunschweig. 1873.
1878. Bericht ueber die III N.S. Jahres-Versammlung d. allgemein, deutschen ornitholog. Gesellsch. zu Berlin. 1878, Leipzig, 1879. *8vo.*
1879. Bericht ueber die XXIIte Versammlung der deutschen Ornith.-Gesell. in Dresden, Mai, 1897. *See* JOURNAL F. ORNITHOLOGIE.

BERICHT UEBER DEN VOGELZUG AUF HELGOLAND. *See* JAHRESBERICHT UEBER DEN VOGELZUG AUF HELGOLAND.

BERICHT UEBER DIE WISSENSCHAFTL. LEISTUNGEN IN DER NATURGESCH. DER NIEDEREN TIERE. 1858–88. *Berlin.*

BERKEL, ADRIAAN VAN.

1922. American voyages, containing a journey to Rio de Berbice situate in the continent of Guiana on the wild-coast of America, together with another to the colony of the said Province Guiana; tr. [from the Dutch] by W. E. Roth. *folio. pp. [4+4]+236.*

The original manuscript, presented by the translator to the Emma Shearer Wood Library of Ornithology.

BERKENHOUT, JOHN [1730–91].

1769–72. Outlines of the Natural History of Great Britain, etc. *3 vols. 16mo. London.*

First edition of a valuable history containing numerous references to the flora and fauna of the British Islands.

1795. Synopsis of the natural history of Great-Britain and Ireland . . . 3rd ed. of the Outlines, &c. corrected and considerably enlarged. *2 vols. 12mo.* Vol. I, *pp. (6)+v–xii+13–334. index.* Vol. II, *pp. (4)+466. index. London.*

A revision of the author's publication entitled *Outlines of the Natural History of Great Britain and Ireland*, etc., 1769–72. The portion treating of the birds will be found in vol. I, pp. 10–54. MS. marginal notes in ink occur throughout both volumes.

BERLEPSCH, HANS HERMANN VON [1857–1915].

1883–5. *See* TACZANOWSKI, L.

1900. Der Gesamte Vogelschutz. 4te Auf. *8 col. pl. Gera.*

1903. Der gesamte Vogelschutz seine Begründung und Ausführung. 6 vermehr. und verbesserte Aufl. *8vo. pp. viii+100. 8 col. pl. T. of c. 34 text-figs. Gera-Untermhaus.*

The sixth edition, one of the many printings of this classic, popular treatise on bird protection.

1904. Der gesamte Vogelschutz. seine Begründung und Ausführung. 9te verm. und verbess. Aufl. *8vo. pp. x+132. 9 col. pl. T. of c. 47 text-figs. Halle.*

A classic work on bird protection and culture that has been issued in many editions and translations. The present copy is a gift from the author to Prof. Ant. Reichenow, to whom it formerly belonged.

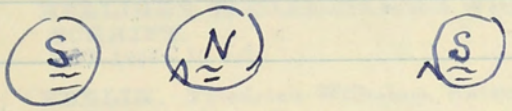
[1905 (1906)]. Descriptions of new species and conspecies of neotropical birds. *8vo. pp. 347–71.*

Author's excerpt from the *Proc. IVth Internat. Orn. Congress*, 1905 (1906), pp. 347–71. Of the 30 'new' forms described (17 species and 13 subspecies), seven had previously been named and briefly described in vol. XVI of the *Bulletin B.O.C.*, May 1906. About half of these new forms are from Argentina and Bolivia, and the others mostly from Brazil, Ecuador, and Colombia.

n.d. Studien über einige südamerikanische Vögel, nebst Beschreibungen neuer Arten, von Hans v. Berlepsch und Paul Leverkühn. *8vo. pp. 32. pl.*

= Berichte über die Leistungen im Gebiete der Crustacea.

[8] [ICH] [NATURGESCHICHTE]



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→ Berlioz, J. 1931. Vie des Oiseaux. Paris. 8vo. pp. 95, 60 pls.

→ Bernatzik, Hugo. A. [1930] Riesenpelikane und ihre Kinder. many plates. pp. 54. Wien ~~1930.~~

→ Berndt. 1906. Studien an bohrenden Cirripedien.

1875. The Treatyse of Fysshynge with an Angle, from the Boke St. Albans A.D. 1496. First American edition, edited by G.W. Van Siclen. With facsimiles of the original Illust. 12mo, pp. 118. New York.

BERLIN. Deutscher Seefischerei-Verein.
1895–1908. Mittheilungen. 1–10, 1885–94, as Deutscher Fischerei-Verein. *Berlin.*

BERLIN. *See* GESELLSCHAFT NATURFORSCHENDER FREUNDE. (K.) PREUSSISCHE AKADEMIE DER WISSENSCHAFTEN.

BERLINER TIERÄRZTLICHE WOCHENSCHRIFT.
1893–1906. 10 vols.

BERLIN. Friedrich-Wilhelms Universität-Zoologische Sammlung.
1888. Liste der Autoren zoologischer Artbegriffe zusammengestellt für die zoologische Sammlung des Königlichen Museums für Naturkunde in Berlin. *8vo. pp. 4+87.* *Berlin.*

Names of authors of species in the zoological collection of the Berlin Museum of Natural History, with their abbreviations. Reichenow-Cabanis collection.

BERLIN. Zoologisches Museum.
1896–1915. Bericht.
1898–*date*. Mitteilungen.

BERMUDA BIOLOGICAL STATION FOR RESEARCH. *Cambridge, Mass.*
1904–*date*. Contributions.

BERN. Naturforsch. Gesellschaft, Mitteilungen.
1823–*date*. Index.

BERN. Städtisches Naturhistorisches Museum.
1871?–*date*. Bericht.

BERNARD, PIERRE, **COUAILHAC,** L., **GERVAIS, F.L.P.** and **LEMAOUT,** EMM.
1842–3. Le jardin des plantes. Description complète, historique et pittoresque du Muséum d'histoire naturelle, de la ménagerie, etc. *26½ cm. 2 vols. front. (vol. 2) illust. pl. (partly col., partly fold.) ports. fold. plan.* Vol. 2 has title: Le jardin des plantes. Description complète, historique et pittoresque du Muséum d'histoire naturelle (oiseaux, reptiles, poissons, insectes et crustacés), par M. le docteur Emm. Lemaout. *Paris.*

A treatise by well-known zoologists, profusely illustrated and of considerable scientific importance.

BERNER MUSEUM DER NATURGESCHICHTE. *Bern.*
1869–71. Mitteilungen.

BERNERS, *Dame* JULIANA [1388–1485].
1808. Treatysse of Fysshynge with an Angle. (A carefully written MS. of 46 pp., illustrated by tracings of the original woodcuts in black laid down; together with MS. notes on fly-leaf and stating 'Transcribed Oct. 18, 1808, by (Sir) H. Ellis' (Principal librarian of the British Museum).

A unique copy of this celebrated treatise on fishing by the famous prioress of Sopwell Nunnery, forming part of the celebrated *Book of Saint Albans*. The author's name is also spelled Bernes, and Barnes.

1810. [The book of Saint Albans.] The book containing the treatises of hawking; hunting; coat-armour; fishing; and blasing of arms. As printed at Westminster, by Wynkyn de Worde, 1496. *4to. black-letter. pp.[2]+104+[172]. illust.* (Literary researches into the history of the Book of Saint Albans.) *London.*

Facsimile reprint of the rare original, printed in red and black with all the old engravings.

1880. A treatyse of fysshynge wyth an angle: being a facsimile reproduction of the first book on the subject of fishing printed in England by Wynkyn de Worde, at Westminster in 1496. With an introduction by Rev. M. G. Watkins. *29×23 cm. pp. 7+23. 2 pl.* *London.*

Another edition of this famous incunabula.

BERNHEIMER, CHARLES LEOPOLD [1864–].
1924. Rainbow Bridge; circling Navajo Mountain and explorations in the 'bad lands' of southern Utah and northern Arizona. *8vo. pp. xv+(3)+182. front. 61 pl. 3 figs.(maps). T. of c. append.* *Garden City.*

A recital of journeys, with faunal references, during the years 1915–23.

BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY. *Honolulu.*
1922–*date*. Bulletin.
1899–*date*. Memoirs.
1898–1923. Occasional papers.
1892–*date*. Special publications.
See also FAUNA HAWAIIENSIS.

BERNIER, J. E.
1910. Report of the 'Arctic' Expedition to Hudson Strait. *Ottawa.*

BERRIDGE, WALTER SYDNEY.
1914. Birds at the zoo. 1st series. Sixty photographs from life, with short descriptive notes. *pp. 70. 60 pl.* *London.*

Volume 13 of Gowan's Nature Books. The first edition was issued in 1907, the present copy being the second edition. A companion volume (2nd series), No. 27, was issued in 1918.

1918. Birds at the zoo. 2nd series. *pp. 73. 60 pl.* *London.*

1919. Wonders of animal life. With numerous illustrations from photographs by the author. *8vo. pp.(6)+270. front. 62 pl. T. of c. index.* *London.*

The first edition appeared in 1915, the present one being a reprint.

[**1922**]. Animal curiosities. *8vo. pp. (4)+7–252. front. 22 pl. T. of c. index.* *London.*

These essays are written with the idea of bringing before 'the man in the street' some of the many remarkable birds and other creatures that populate the earth.

1926. Marvels of Reptile Life. *8vo.*

BERRY, ANA M.
1929. Animals in art. *4to. pp. 18+84. pl.* *London.*

BERRY, EDWARD WILBER [1875–].
1929. Paleontology. *8vo. pp. 12+392. illust. pl.* *New York.*

BERT, EDMUND.
1891. Treatise of hawks and hawking, for the first time reprinted from the original of 1619, with an introd. by J. E. Harting. *8vo. pp. vii+(1)+(16)+109. 1 fig. T. of c.* *London.*

A careful reprint of a very rare and curious old book, *An approved Treatise of Hawkes and Hawking*. Divided into three books. The first teacheth, How to make a short-winged Hawke good, with good conditions. The second, How to reclaime a Hawke from ill condition. The third, teacheth Cures for all Knowne diseases. One hundred copies only of the reprint were issued.

BERT, PAUL [1833–86].
1864. Catalogue méthodique des Animaux Vertébrés . . . de l'Yonne, etc. *8vo. pp. xxii, 129. 2 pl.* *Paris.*

BERTHELOT, SABIN [1794–1880].
1835–44. *See* WEBB AND BERTHELOT.

****, **BARKER-WEBB,** P., and **MOQUIN-TANDON,** A.
1841. Ornithologie canarienne. *See* BARKER-WEBB, P. and MOQUIN-TANDON, A.

1875–6. Oiseaux voyageurs et Poissons de Passage, étude comparée d'organisme, de mœurs et d'instinct. *2 vols. 8vo.* *Paris.*
The title describes this interesting work on comparative anatomy, by a distinguished French naturalist and traveler.

BERTHOUD, SAMUEL HENRY [1804–91].
1870. L'esprit des oiseaux. *8vo. pp. 371. 105 figs. index.* *Tours.*
The third edition of a very interesting and instructive discussion of the psychology of birds with many reports and tales bearing on the subject.

1875. Stories of Bird Life, etc. *8vo. 100 illust.*

BERTRAM, JAMES GLASS [1824–92].
1865. The harvest of the sea; a contribution to the natural and economic history of the British food fishes. *22 cm. xv, 519 pp. incl. front. 50 illust.* 'List of authorities', pp. 499–501. [O.] *London.*

BERTUCH, FRIEDRICH JUSTIN [1747–1822].
1806. Synoptische Enumeration der 2. Classe des Thierreichs, der Vögel. *4to. pp. [5]+14. 4 col. pl. T. of c.* (Tafeln der allgemeinen Naturgeschichte nach ihren drey Reichen.) *Weimar.*
A descriptive table of 158 species of birds, comprising five orders of land-birds and two of water-birds, with their habitat, zoological, local French and English names. The four colored plates with 24 well-made figures are entirely of parrots. The copy in hand is from the Cabanis library.

BERWICKSHIRE NATURALISTS' CLUB. *Alnwick.*
1831–*date.* History (and Proceedings).

BESCHÄFTIGUNGEN D. GESELLSCHAFT NATURFORSCHENDER FREUNDE, BERLIN. 1775–9. (All pub.) *See* GESELLSCHAFT . . . FREUNDE.

BESEKE, JOHANN MELCHIOR GOTTLIEB [1746–1802].
1792. Beytrag zur Naturgeschichte der Vögel Kurlands mit gemalten Kupfern; nebst einem Anhange über die Augenkapseln der Vögel. *12mo. pp. 92. 7 pl. (5 col.).* *Mitau.*
The rare first edition of this descriptive catalogue of the birds of Kurland, listing two new species. An appendix furnishes an accurate, illustrated description of the avian eyeball and of its various coverings.

BESSERER, L. VON.
1926. Unsere Raubvögel, etc. *8vo. 42 fig. München.*

BETTA, E. DE. *See* CORNALIA, E., 1870–74, *ed.*

BETTONI, EUGENIO.
1865–71. Storia naturale degli uccelli che nidificano in Lombardia ad illustrazione della raccolta ornitologica dei fratelli Ercole ed Ernesto Turati, scritta da Eugenio Bettoni; con tavole litografate e colorate prese dal vero da O[scar] Dressler. *3 vols. in 2. folio. 2 vols. text and 1 atlas. imp. folio.* Vols. I and II, *2 col. front. atlas. 120 col. pl. pref. pp. 16. text unpaged. indexes.* Milan, 1865–8–[71]. Issued in (?) 48 parts. Arrangement of plates vary in copies.
Of this rare work only 100 copies were issued, all to subscribers. An excellent account of this fine monograph appears in the *Journal f. Ornithol.*, p. 43, 1866, and p. 278, 1867. Ferdinando Sordelli contributes a discussion of the 'Fagiane acclimati in Lombardia' on the back of the first page of text accompanying pl. 57.

BEUDANT, FRANÇOIS SULPICE [1787–1852], and **others.**
1844. Populaere Naturgeschichte d. 3 Reiche, etc. *7 vols. 12mo.* *Stuttgart.*
First German edition—translation of the French original—an important treatise.

1848. Populaere Naturgeschichte d. 3 Reiche. 2te deutsche Aufl. *3 vols. 12mo.* *Stuttgart.*

BEWICK, JOHN. *See* BEWICK, THOS., 1870.

BEWICK, THOMAS [1753–1828].
1792. General History of Quadrupeds. *pp. 10+483. illust.* *Newcastle.*
This copy is of the third edition and exhibits many excellent examples of the famous writer's rare efficiency as a wood engraver.

**** and **BEILBY,** RALPH.
1797–1804. History of British birds. The figures engraved on wood. *2 vols. 8vo. 233 cuts of birds in the text. T. of c.* Vol. I, *pp. xxx+335+1.* Vol. II, *pp. xx+400.* *Newcastle.*
CONTENTS. Vol. 1. Land birds by Ralph Beilby. 2. Water birds by Thomas Bewick.
A copy of the rare first issue of the first edition as shown (Newton) by the absence of the words 'Wycliffe, 1791' from the figure of the Sea Eagle on p. 11 of vol. I. The text of the first volume was entirely written by Ralph Beilby; the illustrations are all by Bewick. It is as illustrator and artist that Bewick is best known, and mainly on account of his excellent woodcuts this work passed through numerous editions, a supplement (q.v.) being published by him in 1821. He also issued a number of small atlases of cuts without descriptive matter. The text in all the treatises bearing his name are mostly compilations from earlier writers.

1800. Figures of British land birds, engraved on wood; to which are added a few foreign birds with their vulgar and scientific names. *8vo. pp. (4)+266+(2). 250 figs. Newcastle-upon-Tyne.*
This printing contains the woodcuts without text, and at the end a leaf *with the indelicate vignette* (usually blacked out in the British Birds) in the original state. The cuts were printed from the same blocks as used for the British Birds 1797 (q.v.), whilst the figures of foreign birds (14 in number), which, Swainson says, 'not having been taken from the living specimens, are inferior to the others; they were intended for a general work on birds, a design afterwards abandoned'.

1800. Figures of British land birds . . . *8vo. pp. [4]+266. 249 figs.* *Newcastle-upon-Tyne.*
This copy differs from that of same date in the omission (at the end of the volume) of the 'indelicate' plate.

1800. A general history of quadrupeds. 4th ed. *4to. pp. 10+526. many woodcuts.* *Newcastle-upon-Tyne.*
One of many excellent examples of this famous illustrator's art. The Blacker Library has both the large paper and the usual format.

1809. A history of British birds; the figures engraved on wood. [3rd ed.] *2 vols. in 1. 8vo.* Vol. I, *pp. xlii+43–327+(1). 224 figs. T. of c.* Vol. II, *pp. xviii+19–360. 229 figs. T. of c.* *Newcastle.*
The third edition of this well-known *History of British Birds*, of which no less than six editions were issued in Bewick's lifetime.

← Berthelot, S. 1874. Les oiseaux voyageurs, etude comp. d'organisme, de moeurs et d'instinct. 422 p.

⇒ Beumelburg, Werner. Frederick II. Some falconry.

← Bertoni. 1901. Aves nuevas del Paraguay Asuncion.

(Godrey, York)

← Bewick. 1800. Tales for Youth. 12mo. orig. boards. Pr. by Crowder for E. Newbery. 8/6.

← Besler, B. 1616. Fasciculus Rariorum et Aspectu Nigrorum Varii Generis Quae Collegit et Suis Impensis Beri Ad Vivum Lucide Curavit Ataue Evulgavit. Sm. 4to. Eng. title, 24 eng. pls. (Contemporary limp vellum)

→ Bewick, Thomas. 1925. Memoir of. Written by himself, 1822-1828.
With introduction by Prof Selwyn Image.
Portrait and 60 Illus. Large 8vo, 274 pages.
New York.

Ader

[1815?]. A natural history of British birds; thirty-five engravings on wood. Printed and sold wholesale and retail by W. Davison. *18mo. pp. 36. 35 figs.* *Alnwick.*

This little volume contains a selection of woodcuts, with short descriptive text, from Bewick's larger history, and is found bound up with five similar little works on *British Quadrupeds, Foreign Birds, Foreign Quadrupeds, Fishes,* and on *Reptiles, Serpents and Insects.*

[1815?]. A natural history of foreign birds; thirty-four engravings on wood. Printed and sold wholesale and retail by W. Davison. *18mo. pp. 36. 34 figs. (incl. 1 on t.-p.).* *Alnwick.*

A companion book to the one entitled *A natural history of British Birds.*

ca. **1819.** Natural History of British Quadrupeds —Foreign Birds—Foreign Quadrupeds—British Birds—Fishes—Reptiles—Serpents—and Insects. *6 vols.* *Alnwick.*

The volume in hand forms a small library that furnishes excellent samples of Bewick's skill as a wood engraver.

1821. A history of British Birds, and Supplement. Letterpress: vol. 1 by R. Beilby, rev. by T. Bewick.

CONTENTS. Vol. I. History and description of land birds, and Supplement.
Vol. I. 1821. *pp. xl+43–330. 206 cuts.*
Part I. 1821. A Supplement to the *History of British Birds,* containing the History and Description of Land Birds. *pp. 50. index. many text cuts and tail-pieces.*

The fifth edition of this British classic. Vol. II, bound with a supplement. *See* COTES, H.

1821. The figures of a supplement to the British birds. Vol. 1, *20 pl. (land birds). 1 fig.* Vol. 2, *18 pl. (water birds). 1 fig.* *Newcastle.*

A series of 38 figures (engraved on wood) of land and water birds issued as one of the supplements to Bewick's *History of British Birds,* published in 1797–1804.

1824. General History of Quadrupeds. *Newcastle.*

The eighth edition of this classic treatise.

[? **1827**]. [Bewick's Natural History Chap Books.] Printed by W. Davison. *Alnwick.*

Seven *12mo* tractates describing corresponding woodcuts of varied animal life. They resemble the artist's vignettes, arranged for sale as popular pocket pamphlets. They must be exceedingly rare as they are not listed in any catalogue examined by the Compiler.

1832. A history of British birds. [7th ed.] *2 vols. 8vo.* Vol. I, *pp. xl+386. 332 figs. T. of c.* Vol. II. *pp. xxii+424. 307 figs. T. of c.* *Newcastle.*

In this seventh edition are included 14 extra cuts of foreign birds. These latter appear in the eighth and last editions as an appendix, pp. i–xi.

1847. History of British birds. [8th ed.] *2 vols. 8vo.* Vol. I, *pp. (2)+xxxix+(1)+xxxvi+374. 325 figs. T. of c.* Vol. II, *pp. xxiii+(1)+406+(2)+xi. 321 figs. T. of c. append.* *Newcastle.*

The eighth and last edition of this British classic was edited by John Hancock, and is in many respects the best. It contains some 20 extra tail-pieces, which Bewick had executed for a projected History of British Fishes; also 14 additional cuts of foreign birds which appear in the Appendix at the end of vol. II, pp. i–xi.

1860. Wood engravings of land and water birds. Never before published. *114 figs. on 57 pl.* *Newcastle-on-Tyne.*

This collection of wood engravings (from the Sclater collection) by Bewick is not included in the artist's works although some of them are probably prints from the wood blocks used to illustrate his *British Birds.* Many of the figures are identified by penciled notes. The volume is certainly rare.

****, **BEWICK,** JOHN and **HUGO,** THOS.

1870. Bewick's woodcuts: impressions of upwards of two thousand wood-blocks, engraved, for the most part, by Thomas and John Bewick, of Newcastle-on-Tyne. Including illustrations of various kinds for books, pamphlets, and broadsides; cuts for private gentlemen, public companies, clubs, exhibitions, races, newspapers, shop cards, invoice heads, bar bills, &c. With an introduction, a descriptive catalogue of the blocks, and a list of the books and pamphlets illustrated. By Thomas Hugo, the owner of the collection. *demy folio. pp. vii+(3)+28. front. (portr.). 2009 figs. T. of c.* *London.*

A very rare volume of 'Impressions of the unrivalled collection of wood blocks of these two artists owned by Thomas Hugo'. It is not pretended that every single cut in this volume is the work of Thomas or John Bewick, some few of them being by Lee, Harvey, Clennell, and other favorite pupils.

1885–7. Works. Memorial edition. *8vo.* Vol. I, *pp. (2)+xxxix+(1)+xxxvi+(2)+374. 325 figs. T. of c.* Vol. II, *pp. xxiii+(1)+406+(2)+xi. 321 figs. T. of c. append.* Vol. III, Quadrupeds. Vol. IV, Fables of Æsop. Vol. V, Memoir and 17 cuts of fishes. *Newcastle-upon-Tyne*

Vols. I and II, *History of British Birds,* are a reprint of the 8th edition of 1847, which contains some 20 extra tail-species (not published before) that Bewick had executed for a projected History of British Fishes, and also 14 additional woodcuts of foreign birds, which latter appear in the Appendix at the end of vol. II, pp. i–xi. Only 750 copies of this edition were printed.

**** **BOYD, JULIA,** *ed.*

1886. Bewick gleanings; being impressions from copperplates and wood blocks, engraved in the Bewick workshop; ed. with notes by Julia Boyd, to which are added lives of Thomas Bewick and his pupils. With impressions from other wood blocks collected by or lent to the author. *4to. pp. xxiv+(2)+108+(2)+104. front. vignette. 56 pl. 363 figs. 2 indexes.* *Newcastle-upon-Tyne.*

A permanent record of the 'aftermath' of that remarkable workshop wherein was wrought so much interesting work at the end of the eighteenth and beginning of the nineteenth centuries. In this collection birds are not nearly so well represented as mammals. The present copy is No. 8 of the large paper edition.

BEWICK COLLECTOR. *See* HUGO, THOS.

BEYER, E.

1894. Verbreitete Tierformen d. Arktisch. Region in Europa in Diluvium-Zeit. *Marburg.*

BEXON, G. L. C. A. *See* BUFFON and others, 1749–1804.

BIANCHI, VALENTĪN L'VOVĪCH [1857–].

1906. Catalogue of the known species of Alaudidae or family of larks, with a table showing the geographical distribution and a key to the genera. *4to. pp. 96+(2). 2 indexes.* *St. Petersburg.*

This author's separate forms portion of a scheme for completing the account of the important collections of birds made by Prjevalski during his four celebrated expeditions in Central Asia. The first three parts were prepared by Pleske (*Ibis,* 1890, p. 256, and 1895, p. 286). Since 1894 no further instalments were forthcoming until 1905, when the fourth part appeared by Prof. Bianchi. The text was written in Russian and German. The present catalogue, written in English, is part of the larger work.

1911. Oiseaux (Aves). *sm. 4to. pp. [2]+384+1.* Vol. 1, pt. I. *vii pl.* (Faune de la Russie et des pays limitrophes.) *St. Petersbourg.*

This work, apart from its description of the two orders mentioned, is valuable for the extensive bibliography it furnishes.

BIANCONI, GIOVANNI GIUSEPPE [1809–78].
1847–67. Specimina Zoologica Mosambicana, etc. *4to.* *Bononiae.*

1853–4. Repertorio Italiano per la Storia naturale. *2 vols. 8vo.* *Bononiae.*

BIANKI, V. L. *See* BIANCHI, V. L.

BIART, L.
1872. Adventures of a Young Naturalist. Ed. by P. Gillmore. *117 illust.* *New York.*

BIBLIOGRAPHIA ZOOLOGICA. 1896–*date*.
Compiled under H. H. Field as part of the famous *Concilium bibliographicum*, Zürich.
It was also published separately and in book form as a supplement to the *Zoologischer Anzeiger* (q.v.). It is one of the indispensables.

BIBLIOGRAPHICAL SOCIETY OF AMERICA.
1919. Census of Fifteenth Century Books owned in America. *pp. 245.* *N.Y.*
A most useful work of reference to locally owned incunabula.

BIBLIOGRAPHIE DER DEUTSCHEN NATURWISSENSCHAFTLICHEN LITTERATUR. 1901–14. *Jena, Berlin.*

1905–*date*. In 3 parts. Pt. 2 Paläontologie, Biologie, etc.

BIBLIOGRAPHIE DES SCIENCES NATURELLES. 1880–91? *Paris.*

BIBLIOGRAPHIE SCIENTIFIQUE FRANÇAISE. 1902. *Paris.*

1903–*date*. In two parts. Pt. 2 Sciences Naturelles et Biologiques.

BIBLIOGRAPHIE DES TRAVAUX SCIENTIFIQUES, SCIENCES MATHÉMATIQUES, PHYSIQUES ET NATURELLES. 1895–*date*. *Paris.*

BIBLIOGRAPHISCHE ZEITSCHRIFT FÜR NATURWISSENSCHAFTEN UND MATHEMATIK. 1900–7. *Berlin.*

BIBLIOTECA NAZIONALE CENTRALE DI FIRENZE. 1886–1900. *Firenze.*

BIBLIOTECA DELLA ZOOLOGIA ED ANATOMIA COMPARATA IN ITALIA. 1878–80. *Turin.*

BIBLIOTHECA HISTORICO-NATURALIS. *Leipzig.*
1700–1846. Continued as *Bibliotheca Zoologica.*

BIBLIOTHECA HISTORICO-NATURALIS, PHYSICO-CHEMICA ET MATHEMATICA. 1751–78. *Göttingen.*

BIBLIOTHECA HISTORICO-NATURALIS ET ZOOLOGICA I ET II. (3 Abt.) bearb. v. W. ENGELMANN, J. V. CARUS u. O. TASCHENBERG.
1846–1930. I. Engelmann, W., Verzeichnis d. Bücher über Naturgeschichte 1700–1846. 1. (einziger) Bd. 1846.—II. Carus, J. V. u W. Engelmann, Bibliotheca zoologica (I). Verzeichnis d. Schriften über Zoologie 1846–60. 2 Bde.—III. Taschenberg, O., Bibliotheca zoologica II. Verzeichnis d. Schriften über Zoologie 1861–80. 8 Bde. (Bd. 7 in 2 Hälften.) 1887–1923. *Leipzig.*
A most useful work of reference for both student and librarian, comprising titles of zoological literature from 1700 to date.

BIBLIOTHECA ZOOLOGICA.
1861–1923. Bibl. of 1846–60 by J. V. Carus and W. Engelmann. *2 vols.* Bibliotheca Zoologica II, for 1861–80, by O. Taschenberg. 1887–1923. *8 vols.* *Leipzig.*
Continuation of *Bibliotheca historico-naturalis*, etc. (q.v.). *See also* ENGELMANN, W.

BIBLIOTHEK FÜR AQUARIEN- UND TERRARIENKUNDE. 1907–*date*. *Brunswick.*

BIBLIOTHEK DER GESAMMTEN NATURGESCHICHTE. 1789–91. *Frankfurt-a-M.*

BIBLIOTHEK DER NATURWISSENSCHAFTEN NEUESTER ZEIT. 1836–8? *Leipzig.*

BIBLIOTHÈQUE UNIVERSELLE. (Archives des Sciences Physiques et Naturelles.) *Geneva, Lausanne.*

1846–57. Series 1.

1858–78. „ 2.

1878–95. „ 3.

1896–1918. Series 4.

1919–*date*. Series 5.

BIBRON, GABRIEL [1806–48]. *See* BORY DE SAINT-VINCENT, 1832–6.

1835–47. *See* VOYAGES, FRENCH. VOYAGE DANS L'AMÉRIQUE MÉRIDIONALE.

1839–61. *See* SAGRA, RAMON DE LA.

1840–66. *See* VOYAGES, FRENCH. VOYAGE AUTOUR DU MONDE . . . SUR LA BONITE.

1847. Reptiles. *folio. pp. 12* (*in* Orbigny, A. [D.] d'. 1802–57. Voyage dans l'Amérique méridionale, 1826–33. Vol. 5, pt. 1). *Paris.*
Author's separate.

BICKERTON, W.
1912. The home-life of the terns or sea swallows. *8vo. pp. 88+(4)+16 ll. 32 pl. (37 figs.).* *T. of c.* *London.*
Interesting accounts of the home-life of the five terns breeding in the British Isles, the Sandwich, Common, Lesser or Little, Roseate and Arctic Terns, a companion volume to *The Home-life of the Spoonbill*, 1910, by Bentley Beetham.

1925. The natural history of Hertfordshire. *See* WILMORE, A.

BIDRAG TILL FINLANDS NATURKÄNNEDOM, ETNOGRAPHI OCH STATISTIK. 1857–64. *Helsingfors.*

BIDRAG TILL KÄNNEDOM AF FINLANDS NATUR OCH FOLK. 1858–*date*. *Helsingfors.*

BIELEFELD.
1908–*date*. Naturwissenschaftl. Verein f. Bielefeld u. Umgegend. Bericht.

/1d

7 Der Biologe. Monatschrift. München. Organ d. Deutsch. Biologen-Verbandes ?1931 + cont. I →

BIELZ, EDUARD ALBERT [1826?–98].

1856. Fauna der Wirbelthiere Siebenbürgens, etc. *8vo. pp. 6+200.* *Hermannstadt.*

BIGGE, G. R.

1846. Catalogue of British Birds, etc. *8vo.* *Durham.*

This consists of labels for use in cataloguing specimens.

BIGNON, FANNY.

1889. Contribution à l'étude de la pneumaticité chez les oiseaux. *8vo. pp. 67+(1). 4 pl.* *Lille.*

A Paris University thesis on the air sacs of birds.

BIGSBY, JOHN JEREMIAH [1792–1881].

1868. Thesaurus siluricus. The flora and fauna of the Silurian period. *4to. pp. 56+214. front. (map).* *London.*

1878. Thesaurus devonico-carboniferus. The flora and fauna of the Devonian and Carboniferous periods. The genera and species arranged in tabular form, showing their horizons, recurrences, localities, and other facts. *28 cm. pp. 448. fold. tab., diagr.* *London.*

BIJDRAGEN TOT DE DIERKUNDE. (K. Zoölogisch genootschap 'Natura Artis Magistra'.) **1848**–*date.* *Amsterdam.*

A most important zoological periodical, the organ of a large and active Dutch society devoted to natural history.

BIJDRAGEN TOT DE NATUURKUNDIGE WETENSCHAPPEN. **1826–32.** *Amsterdam.*

BIJDRAGEN TOT DE TAAL- EN VOLKENKUNDE NEERLANDSCH INDIË. **1852**–*date.* *The Hague.*

BILDER AUS DER GESCHICHTE DER BIOLOGISCHEN GRUNDPROBLEME. *Berlin.*

(Wanting.)

BILHARZ, THEODOR.

1857. Das electrische Organ des Zitterwelses anatomisch beschrieben. *folio. pp. 6+52. 4 pl.* *Leipzig.*

BILLBERG, GUSTAV JOHAN [1772–].

1806–9. *See* PALMSTRUCH, JOHAN WILHELM.

1827. Synopsis Faunae Scandinaviae. *12mo.* *Holmiae.*

BINGEN, HEILIGE HILDEGARDE VON.

For her description and depiction of bird-life in the Middle Ages, *see* SINGER, CHARLES, 1917–21.

BINGHAM, H. C.

1922. Visual perception of the Chick. (Behavior Monograph 20.) *Baltimore.*

Author's separate.

BINGLEY, *Rev.* WILLIAM [1774–1823].

1804. Animal biography; or, Authentic anecdotes of the lives, manners, and economy of the animal creation. Arranged according to the system of Linnæus. In three volumes. 2nd ed., with considerable additions and corrections. *3 vols. 8vo.* Vol. I, *pp. xxiii+(1)+504+(8). front. (fold.). bibliogr. append. 2 indexes.* Vol. II, *pp. (2)+554. 2 indexes.* Vol. III, *pp. (2)+580. 2 indexes.* *London.*

A popular compilation, with additions and corrections to the first edition of 1802–3.

1809. Memoirs of British Quadrupeds, etc. (A synopsis of British Quadrupeds.) *8vo. pp. 12+459+80. 74 col. pl.* *London.*

A semi-popular work, illustrated by Samuel Howitt, by a naturalist that wrote several books, in the same style, on faunal and floral subjects.

1813. Animal biography; or, Popular zoology. With an addition of more than one hundred and forty species. 4th ed. *3 vols. 8vo.* Vol. I, *pp. xxxix +(1)+520. bibliogr. index.* Vol. II, *pp. (2)+466.* Vol. III, *pp. (2)+495.* *London.*

The present edition has been corrected throughout and at least one-third of the whole rewritten. A sixth edition in 4 volumes was issued in 1824.

[? **1870**]. The history of birds; their varieties and oddities comprising graphic descriptions of nearly all known species, etc. *8vo. pp. 526. illust. index.* *Chicago.*

A badly printed, crudely illustrated 'with over 500 spirited illustrations', and a more or less accurate description of animals written in familiar style.

BINNEY, GEORGE [1900–].

[**1925**]. With seaplane and sledge in the Arctic, with a preface by W. J. Sollas. 40 pages of illust. *8vo. pp. 287. front. 39 pl. 1 map (fold.). T. of c. 10 append. index.* *London.*

An interesting account of the Oxford University Arctic Expedition of 1924. Eighteen species of birds are mentioned with three illustrations.

BIOLOGIA CENTRALI-AMERICANA.

1879–82. Zoology, botany, and archaeology. Ed. by F. D. Godman . . . and O. Salvin . . . Introductory volume. *See* GODMAN, F. D. and SALVIN, O.

1904. Biologia centrali-americana. Mammalia, by E. R. Alston, with an introd. by P. L. Sclater. *folio. pp. 20+220. pl. See* GODMAN, F. D. and SALVIN, O.

Author's reprint.

BIOLOGIA GENERALIS. International journal of general biology.

1925–8. Archives internationales de biologie générale. Internationale Zeitschrift für allgemeine Biologie. Archivio internazionale di biologia generale . . . vols. 1–4. *Vienna.*

BIOLOGICA HUNGARICA. BUDAPEST.

1923. Vol. I, pts. 1–7 (all pub.).

BIOLOGICAL ABSTRACTS.

1927–*date.* Publication Office, Menasha, Wisconsin.

BIOLOGICAL BULLETIN. *Boston.*

1898–*date.* Continues Zoological Bulletin.

BIOLOGICAL MONOGRAPHS AND MANUALS. Animal genetics; an introduction to the science of animal breeding. *See* CREW, FRANCIS ALBERT ELEY.

BIOLOGICAL SOCIETY OF WASHINGTON.

1918. Bulletin.

1880–*date.* Proceedings. *See* PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON.

BIOLOGISCHE ANSTALT AUF HELGOLAND. *See* WISSENSCHAFTLICHE MEERESUNTERSUCHUNGEN. *Helgoland.*

BIOLOGISCHE NATURKUNDE. *See* ARCHIV FÜR DIE NATURKUNDE EESTIS.

BIOLOGISCHE STATION ZU PLÖN. *See* ARCHIV FÜR HYDROBIOLOGIE UND PLANKTONKUNDE.

BIOLOGISCHES ZENTRALBLATT. 1881–*date.* *Erlangen, Leipzig.*

BIOLOGISCHE UNTERSUCHUNGEN. 1881–2. (*Retzius.*) *Stockholm.*

1890–1921. New series.

BIOLOGIST. 1916–*date.* *Mesa, Colo.*

BIOMETRIKA. 1901–*date.* *Cambridge, Eng.*

BIRCHLEY, SUMNER W.

1909. British birds for cages, aviaries, and exhibitions. *2 vols. 8vo.* Vol. 1, *pp. xiv+302. front. 43 pl. T. of c.* Vol. 2, *pp. viii+234. front. 27 pl. 23 sect. plans. T. of c.* *London.*

A popular account of British birds suitable for cage purposes, with instructions for dealing with their general diseases and ailments.

BIRD-BANDING.

1930. A journal of ornithological investigation [quarterly]. January 1930. Continuation of the Northeastern bird-banding association. Bulletin. *Boston.*

BIRD BANDING NOTES.

1922–*date.* Issued by the Bureau of Biological Survey, Washington, D.C. E. W. Nelson, Director. Mimeographed. Issued irregularly; recently every month from April 15, 1922–*date.* Nos. I–XII. *pp. various (9–15).*

Although the Director deprecates listing this useful circular as a 'periodical' yet it comes well within the definition adopted by the Compiler, and he is glad to draw attention to its extreme value as a record of work done in bird banding, not only in the United States but abroad. Moreover, there are a number of articles on the subject, by specialists, local lists of Bird Banding Societies, outline maps, etc., well worthy of inspection by those engaged or interested in this important activity.

BIRD CALL, THE.

1887. (All pub.) Monthly. *4to.*

The Compiler is indebted to Dr. Witmer Stone for the following notes on the rare periodical: 'So far as I know, only six numbers (January to June) were published in Philadelphia by the original Pennsylvania Audubon Society in 1887. They had no cover, the title being printed across the top of the first page, and they covered eight pages, each, the last page being devoted to advertisements.
'The subject-matter was almost entirely quotations from other journals, largely those of the Society for Prevention of Cruelty to Animals.
'I am not sure who was the Editor, as no name is given, but I think the late Mrs. Brinton Coxe was the responsible one.'

BIRD CLUB OF PRINCETON UNIVERSITY.

September 1901. Bulletin. 1, no. 1. *8vo. pp. 62.* *Princeton, N.J.*

The first number (probably all issued) contains a list of the officers and club membership, and a paper on the Birds of Princeton, New Jersey, and vicinity, by W. A. Babdon. The announcement is made that the Club 'will issue further bulletins as the accumulation or importance of original matter may warrant'.

(THE) BIRD FANCIER'S NECESSARY COMPANION AND SURE GUIDE.

1762. *See* ANONYMOUS, Bird Fancier's necessary companion.

(THE) BIRD FANCIER'S RECREATION, &c.

1728. *See* ANONYMOUS, Bird Fancier's recreation.

BIRDLAND; THE NATURE STUDY BOOK. *c.* **1914.** *See* ANONYMOUS, Birdland.

BIRD-LORE. An illustrated bi-monthly Magazine devoted to the study and protection of Birds. Englewood, N.J. and N.Y. City. Edited by Frank M. Chapman, N.Y. Published by The MacMillan Co. *illust.* Official organ of the Audubon Societies. Audubon Department edited by Mabel Osgood Wright. Bi-monthly. *col. pictured wrappers.*

1898–*date.* Vols. 1– . *8vo. T. of c.*

To this important American periodical, the organ of many flourishing Audubon Societies, a large number of the best known New World ornithologists have contributed articles, generally well illustrated and of scientific merit. While most of these papers discuss local bird study, cultivation, and protection, yet many are original contributions on foreign birds. The magazine has an excellent department in which current avian journals are noticed. All in all, it is by far the best periodical of its class in any language.

BIRD-LOVER, THE.

1914. An occasional Paper. Pub. by the Selborne Society Bird Sanctuary Committee, The Hermitage, London, Hanwell, W. *8vo. illust.* Vol. 1, No. 1 (all issued). No. 1, issued March 1914. *pp. 24. 8 illust. in black.* *London.*

This magazine was published in the interest of bird sanctuaries in general and of the Selborne Society's Brent Valley Sanctuary in particular. It is to be hoped that such a philanthropic publication (interrupted by war conditions) may be resumed in the near future.

BIRD NEWS.

1909. Published by the Avicultural Society of California. Devoted to the Interests of the Bird Fancier. Frederick W. D'Evelyn, Editor; W. W. Cooley, Business Manager. Bi-monthly. *8vo. pictured title-page.* Vol. I. 1909. Nos. 1–6, Jan.–Dec. *64 pp.* (All issued.) *San Francisco.*

F. L. Burns gives the date 1901; the *Auk*, 1900.

BIRD NOTES. / Being the Journal of / The Foreign Bird Club / and the / National British Bird / and Mule Club. Monthly.

1901–25. Many black and colored illustrations. Divided into Series 1 (1901–9); Series 2 (1910–17); Series 3 (1918–25).
Vols. IV–VII, 1921–5, when pub. ceased after amalgamation with the Avicultural Society (q.v.).

Bird Notes combines the attractions of a practical, popular journal, with the qualities of a scientific publication. Among its contributors and collaborators are the names of many ornithologists of rank. The construction and conduct of private aviaries and the breeding of foreign and domestic avifauna in captivity—of considerable importance from several standpoints—are fully discussed and depicted in its pages. It is also refreshing to note in this periodical the gradual improvement and enlargement of the format and wrappers from small beginnings to the dignity of a first-rate magazine and its continuation in size and contents, instead of the opposite state of affairs, too frequently observed in other periodicals. Under the title *Bird Market* trade reports on foreign cage birds are appended to each number, forming a second supplement for the use of members of the Club. These have not been separately issued although the former title is occasionally referred to as if it were a distinct publication.

BIRD NOTES AND NEWS. A circular Letter Addressed to Members and Friends of the Royal Society for the Protection of Birds and to all interested in Bird Protection. London. Published at the office of the Royal Society for the Protection of Birds, 3 Hanover Sq.

1903. *large 8vo. illust. T. of c. and indexes.* First vol. 12 nos.; remainder 8 nos. Tinted covers since 1906.

In addition to the publication of this well-edited periodical, organ of a Society doing admirable work in the British Empire, the Society publishes many leaflets on such important topics as 'The Plume Trade', 'Bird and Tree Day', 'Bird Sanctuaries', etc., and endeavors

←Bird, G. W. 1897. Wanderings in Burma. 8vo. illus., map.

→ 1870. Proceedings.

1883. Report and Transactions.

to encourage public education on the subject of Bird Protection, Bird Culture, and the advocacy of the rights of animals. The Membership of the Society and contributors to its organ include many prominent ornithologists, embracing such men as the late W. H. Hudson, who are in sympathy with and take part in the activities of the Society.
The present Secretary of the Society and the principal contributor to the columns of this magazine is Miss L. Gardiner, Victoria St., London, S.W. 1.

BIRDS; a monthly serial illustrated by color photography, designed to promote knowledge of bird-life. *See* BIRDS AND NATURE MAGAZINE.

BIRDS. Religious Tract Society.
1842. *12mo.* *London.*

BIRDS AND ALL NATURE IN NATURAL COLORS; a monthly serial illustrated by color photography. **1914–19.** *See* BIRDS AND NATURE MAGAZINE.

BIRDS AND NATURE MAGAZINE.
1896?–1907. 1–[21], January 1897–June 1907. *roy. 8vo.* *Chicago.*
Monthly 1897–8; monthly except July–Aug. 1899–1907. 2 volumes yearly.
Publishers: Nature Study Publishing Co.
Editors: July 1898–May 1900, C. C. Marble; Sept. 1900–June 1906, W. E. Higley.
Volume numbering irregular. Vols. 17–19 called (on t.-p. only) 'vols. 1–3'; vol. 20 called 'vol. 4'; vol. 21, nos. 1–3, called 'vol. 5, nos. 1–3'; vol. 21, nos. 4, 5, called 'vol. 1, no. 1, 2, old ser., vol. 20, nos. 4, 5'.
Vols. 1–2 (Jan.–Dec. 1897) title reads: Birds illustrated by color photography; a monthly serial designed to promote knowledge of bird-life.
Vol. 3 (Jan.–June 1898) title reads: Birds; a monthly serial illustrated by color photography designed to promote knowledge of bird-life.
Vol. 4 (July–Dec. 1898) title reads: Birds and all nature in natural colors; a monthly serial illustrated by color photography.
Vol. 5 (Jan.–May 1899) title reads: Birds and all nature in natural colors; a monthly serial, forty illustrations by color photography, a guide to the study of bird-life.
Vols. 6–7 (June 1899–May 1900) title reads: Birds and all nature in natural colors; a monthly serial, forty illustrations by color photography, a guide to the study of nature.
Vol. 8, no. 1 (June 1900) title reads: Nature and art illustrated by color photography.
Vol. 8, nos. 2–[21], no. 4 (Sept. 1900–April 1907) title reads: Birds and nature in natural colors.
Vol. 8, nos. 5–6 (May–June 1907) title reads: Birds and nature magazine.
In many ways this periodical served to arouse interest in popular ornithology—bird protection in particular—and its colored illustrations were widely sold as separate publications. It suspended publication during the World War. Continued as *Nature and Art.*

BIRDS I HAVE SEEN.
1905. *See* ANONYMOUS, Birds I have seen.

BIRDS OF THE STONEYHURST DISTRICT.
1888. *See* ANONYMOUS, Birds of the Stoneyhurst district.

BIRD WORLD MAGAZINE.
1906–7. December 1906–November 1907. (All pub.) *8vo.* Colored frontispiece and tinted (colored) pictured wrappers. A popular magazine issued by F. Carl, 154 Fleet St., London, E.C. *London.*
It seems a pity that this attractive, well-edited, and useful journal, devoted to popular ornithology, should have such a brief career. It presents many practical, well illustrated articles on wild, as well as on domesticated birds. It was merged with *Cage birds,* to form: *Cage birds and bird world.*

BIRMINGHAM NATURAL HISTORY AND MICROSCOPICAL SOCIETY.
1864–72. Annual Reports. United with Birmingham Philosophical Society to form Birmingham Natural History and Phil. Soc.

BIRMINGHAM NATURAL HISTORY AND PHILOSOPHICAL SOCIETY. *Birmingham.*
1894–*date.* Annual Report.

1894–7. Journal.

1876–*date.* Proceedings.

BIRMINGHAM NATURALISTS' GAZETTE.
1882–3. Nos. 1–7 (all pub.).

BIRMINGHAM PHILOSOPHICAL SOCIETY. *See* BIRMINGHAM NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.

BĬRULA, ALEXANDER [BYALUINĬTZKIĬ-BIRULYA, ALEKSANDR ANDREEVICH].
1907. Esquisse de la vie des oiseaux dans le littoral polaire de la Sibérie. *folio. pp.* [4]+36+*157. 8 pl. 23 figs. in text. T. of c. index.* (Académie impériale des sci. de St. Pétersbourg. Mémoires. Sér. 8, vol. 18, no. 2.) In Russian. T.-p. in Russian and French on reverse of cover. *St. Pétersbourg.*
A repaged excerpt on the shore birds of Northern Siberia observed during the Russian Polar Expedition, 1900–3. The monograph forms Part II of vol. I, Section E, Zoology. The other monographs in this section are devoted to certain fishes and a few invertebrates.

BISCHOFF, G. W. and **others.** *See* LEUCKART, F. S., 1832.

BISHOP, LOUIS BENNETT [1865–].
1900. Annotated list of Birds of the Yukon Region. *pp. 50. index.*

****, **SANFORD,** L. C., and **VAN DYKE,** T. S.
1903. The water-fowl family.

****, **SAGE,** J. H., and **BLISS,** W. P.
1913. The birds of Connecticut, &c. *See* SAGE, J. H. and BLISS, W. P.

BITTERN, THE.
1890–1. (All pub.) October 1890–December 1891. Editor and publisher, H. E. Berry. Printed by the News Publishing Co., J. F. Aldis, manager. The second volume was issued by C. W. Hillman, Canisteo, N.Y. Merged into the Empire state naturalist. *Damariscotta, Maine—Canisteo, N.Y.*

1900–1. 1, nos. 1–4, June 1900–January 1901. *8vo, 12vo.* Editor and publisher, Glen M. Hathorn. Continuation of: Western ornithologist, 1894–1900 (*formerly* the Iowa ornithologist). *Cedar Rapids, Ia.*
This interesting periodical contains with other matters papers by the editor (G. M. Hathorn), Morris Gibbs, H. E. Bishop, and William Rolfe.

BLAAUW, FRANS ERNST [1860–].

1897. A monograph of the cranes. Illust. by 22 col. pl. by Heinrich Leutemann and J. G. Keulemans. *pp. viii+64. 22 pl. (col., 2 eggs). 13 figs. index.* *Leyden and London.*

Only 170 copies were printed, of which the present one is No. 88—a fine, systematic treatise beautifully illustrated.

BLACK, W. T.

1901. The Fish River Bush, South Africa, and its wild animals. *8vo. pp. 55. front. 5 pl. T. of c. bibliogr.* *Edinburgh.*

Author's excerpt from the *Edinburgh New Philosophical Journal* of July and October 1853.

BLACKBURN, *Mrs.* HUGH.

1862. Birds drawn from nature. *folio. pp. 2+6. 22 pl. T. of c.* *Edinburgh.*

A series of spirited drawings of Scotch birds. Twenty-three additional plates were prepared for a second (1868) edition, which are, with a number from this volume, included in the author's *Birds from Moidart and elsewhere.*

1868. Birds Drawn from Nature. 2nd ed. *Edinburgh.*

1895. Birds from Moidart and elsewhere; drawn from nature by J. B. *8vo. pp. viii+191. front. 87 pl. T. of c.* *Edinburgh.*

Uncolored lithographs of birds, mostly from Moidart, Inverness-shire, Scotland, accompanied by notes and anecdotes of the various species. Some of the plates were published originally in the author's folio, *Birds drawn from nature,* 1862.

BLACKER, *Maj.* LATHAM C. M.

1901. A history of the family of Blacker of Carrickblacker in Ireland. *8vo. pp. 50+8. tab.* *Dublin.*

BLACKWALL, JOHN [1790–1881].

1873. Researches in zoology, illustrative of the structure, habits and economy of animals. 2nd ed. *8vo. pp. viii+343. 2 pl. T. of c. index.* *London.*

First published in 1834. The portion relating to birds will be found on pp. 1–183.

BLAGRAVE, J.

1685. The Epitome of the Art of Husbandry, etc.

BLAINVILLE, H. M. D. DE [1777–1850]. *See* VIEILLOT and others, 1820–30.

1839–64. Ostéographie, ou description iconographique comparée du squelette et du système dentaire des Mammifères récents et fossiles. *4 vols. 4to. atlas.* *Paris.*

The title-page originally issued with Tom. 1 differs somewhat from the above. For note by C. Davies Sherborn on the dates of publication of the parts of this work, see *Ann. and Mag. Nat. Hist.,* Ser. VII (1898), p. 76.

1840–46. *See* VOYAGES, FRENCH. VOYAGE AUTOUR DU MONDE . . . SUR LA BONITE.

BLAIR, FRANCIS G.

1921. Illinois arbor and bird days. Friday, April fifteenth; Friday, October twenty-first. Circular no. 151. *8vo. pp. 68. 61 figs.*

Two days upon which the local authorities may designate suitable exercises to be held to accentuate and emphasize the importance of the propagation of trees, shrubs, and vines, and the preservation of native bird life. The text and illustrations are designed to arouse and maintain a healthful interest in outdoor life, in building boxes for birds, in feeding and protecting them, in trees and their care, in wild flowers.

BLAIR, WILLIAM REID [1875–].

1929. In the zoo; representing twenty-seven years of observation and study of the animals in the New York zoological park. *8vo. pp. 12+195. pl.* *New York.*

BLAKE, CHARLES CARTER.

1875. Zoology for students, a handbook; with a preface by Richard Owen. *8vo. pp. xv+(1)+382. 110 figs. T. of c.* *London.*

A series of lectures delivered to students of Comparative Anatomy at Westminster Hospital since 1869.

BLAKE, F. G. and M. C.

1903. Williamstown's Birds. Newspaper Cuttings.

BLAKE, IRVING HILL [1888–].

1927. A comparison of the animal communities of coniferous and deciduous forests. *4to. pp. 148. pl. diagr. map.* (Illinois University theses.) *Urbana.*

BLAKISTON, THOMAS WRIGHT, and **PREYER,** T. W.

1882. Birds of Japan. *London.*

A rather rare and important treatise.

1884. Amended list of the birds of Japan, according to geographical distribution; with notes concerning additions and corrections since January 1882. *8vo. pp. 68.* *London.*

This privately printed and rather scarce work forms a useful contribution to a study of Japanese avifauna. 351 species are described or listed, either as indigenous or migratory varieties, and their geographical distribution is carefully tabled. The present copy is from P. L. Sclater's library.

BLAKSTON, W. A. and **others.**

[1877–80]. The illustrated book of canaries and cage-birds, British and foreign. *4to. pp. viii+448. front. (col.). 55 pl. (col.). 92 figs. T. of c. index.* *London.*

An important work on Cage-Birds divided into three main divisions: (1) Canaries, pp. 1–297, by Blakston; (2) British Cage-Birds, pp. 298–344, by Swaysland; and Foreign Cage-Birds, pp. 345–444, by Wiener.

BLANC, ALPHONSE.

1848. Leçons de zoologie générale pour servir d'introduction à l'étude de l'ornithologie; pub. sous les auspices de M. Isidore Geoffroy-Saint-Hilaire. *8vo. pp. [2]+133.* (Muséum d'histoire naturelle.) *Paris.*

The title indicates the character of this work, a well-considered review of ornithology especially in the light of the works and opinions of Geoffroy-Saint-Hilaire, whose contribution, under the caption 'Cours d'Ornithologie', it really is. From the Godman library.

BLANC, HENRI.

1907. Louis Agassiz, ses travaux en zoologie et en paléontologie. *4to. pp. 26.* Author's reprint, *Bulletin de la Société vaudoise des sciences naturelles,* 1907. *Lausanne.*

BLANCHAN, *Mrs.* NELTJE (DOUBLEDAY, *Mrs.* NELTJE). *See* DOUBLEDAY, *Mrs.* NELTJE.

1901. Bird Neighbors. *New York.*

1902. How to attract the birds, and other talks about bird neighbors. *Toronto.*

1904. Birds that Hunt and are Hunted.

n.d. Nature's Garden.

One of the many popular books on natural history by this gifted authoress. *See* DOUBLEDAY, *Mrs.* NELTJE.

BLANCHARD, CHARLES ÉMILE [1819–1900].

1841–54. *See* VOYAGES, FRENCH. VOYAGE AU PÔLE SUD.

1857. Iconographie des perroquets, etc. *See* SOUANCÉ, CHARLES DE.

← Blakey, R. 1853. Angler's complete guide to the rivers and lakes of England.
186p. 1 pl. 12mo. London.

→ Blaine, Gilbert. Falconry, 1936.

→ Blanchon, A. 1896. Canards, oies et cygnes, palmipèdes de produit, d'ornements et de chasse. 348 p. 73 fig.

[1859]. Recherches sur les caractères ostéologiques des oiseaux appliquées à la classification naturelle de ces animaux. *8vo. pp. 128.*

Originally contributed to *Annales des Sciences Naturelles*, Zoologie, Sér. 4, t. 11, pp. 11–145, and continuation. The separate title is not found in any ordinary catalogue. It is a companion to another essay on the structure of the sternum in birds, illustrated by four plates. Criticizes Lherminier's study of the sternal apparatus of birds.

1866. Les poissons des eaux douces de la France. *151 figs.* *Paris.*

By an authority of acknowledged excellence on French freshwater fishes.

BLANCHARD, FRANK N.

1921. A Revision of the King Snakes; Genus Lampropeltis. *8vo. pp. vi+260.* *Washington.*

1924. A Key to the Snakes of the United States, Canada and Lower California. *pp. 13+65.* (*Papers Michigan Acad.*, vol. 4, pt. 2.)

BLANCHARD, PIERRE [1772–1856].

1817–19. Thesouro de meninos; resumo de historia natural, para uso da mocidade de ambos os sexos, e instrucçáo das pessoas, que desejáo ter noçóes da historia dos tres reinos da natureza; obra elementar, tr. do Francez, com muitas correcções e artigos novos. *12mo. illust. pl.* *Lisbõa.*

The library copy has the portion relating to zoology, tom. iii–v. The three volumes are from the Royal library with the Portuguese arms stamped on the leather cover.

BLANCHARD, RAPHAËL ANATOLE ÉMILE [1857–?1929].

1902. Madagascar au début du XXe Siècle. *8vo. pp. 5+465. 1 pl. figs. in text.* (Wanting.) *Paris.*

The natural history was not forgotten in this treatise, the zoology having been discussed by G. Grandidier.

BLANCHÈRE, H. DE LA.

1875. Oiseaux et les Oiseaux nuisibles. *illust.* *Paris.*

All the (popular) works of this author are extremely scarce.

1876. Les oiseaux gibier. . . . *Paris.*

1884. Les oiseaux utiles et les oiseaux nuisibles. 4th ed. *pp. 387. 150 figs.* *Paris.*

A French contribution of importance to economic ornithology. Very rare.

BLANCHET, A. and **others.**

1924. Contributions à l'ornithologie Tunisienne pour servir de complément et de supplément aux Birds of Tunisia. *See also* LAVAUDEN, L.

BLANCKE, B.

[**1913**]. Musterbeschreibungen unseres Rassegeflügels auf Grund der vom Club deutscher Rassegeflügelzüchter und den Sonderzuchtverein veröffentlichten Standards. *8vo. pp. 154. 41 text-figs. T. of c.* *Berlin.*

A useful descriptive catalogue, in popular form, of the various races of farmyard fowls and other domesticated birds.

BLANFORD, WILLIAM THOMAS [1832–1905].

1870. Observations on the geology and zoology of Abyssinia, made during the progress of the British expedition to that country in 1867–68. *8vo. pp. xii+487. front.* (*map col. fold.*). *12 pl.* (*6 col.*). *4 wood engravings. 1 map* (*col. fold.*). *17 figs. T. of c. index.* *London.*

Divided into three parts: (1) A brief description of the journey; (2) Geology; (3) Zoological observations. The portion devoted to the birds will be found on pp. 285–443 with six colored plates, by J. G. Keulemans. The annotated list enumerates 293 species and subspecies, with short synonymy, range, general habits, etc.

1876. Eastern Persia: An account of the journeys of the Persian boundary commission 1870–71–72. *2 vols.* Vol. II, Zoology and Geology. *8vo. pp. viii+516. xxviii pl., majority col. index.* *London.*

A valuable account, much of it contributed by Major O. B. St. John, of the fauna of Persia, with the native names of the animals. The volumes were issued by the authority of the Government of India, and beautifully illustrated by Keulemans. These volumes were also separately sold.

1876. *See* GOLDSMID, *Sir* F. J., Eastern Persia.

1876. Zoology and geology. *8vo. pp. 8+516. illust. pl.* (Persian boundary commission, vol. II.) *London.*

1876. Zoology of Persia. (Boundary Commission.) *London.*

An important contribution to the subject, separately issued.

1878–91. *See* SCIENTIFIC RESULTS . . . SECOND YARKAND MISSION.

1888–91. The fauna of British India, including Ceylon and Burma. *8vo. pp. 20+617. illust.* *London.*

A famous treatise with many contributors under the editorial control of W. T. Blanford.

1888–91. Mammalia [of British India]. *8vo. pp. 6+20+617. illust.* (Fauna of British India.) Illustrations and clippings inserted. *London.*

1889. The fauna of British India, including Ceylon and Burma; Fishes by Francis Day. *2 vols. 8vo. illust.* *London.*

1889–98. The fauna of British India, including Ceylon and Burma; Birds (vols. 1–2) by E. W. Oates and (vols. 3–4) W. T. Blanford. *4 vols. 8vo. illust.* *London.*

A second edition of the birds is now in course of preparation by E. C. Stuart Baker.

1890. The fauna of British India, including Ceylon and Burma; Reptilia and Batrachia by G. A. Boulenger. *8vo. pp. 18–541. illust. London.*

BLANKENBURG.

1840–62. Naturwissenschaftl. Verein des Harzes zu Blankenburg. Berichte (Title varies) (no issue for 1850)—all pub.

BLASIUS, GERARD [1623–82].

1681. Anatome animalium, terrestrium varorum, volatilium, aquatilium, serpentum, insectorum, ovorumque, structuram naturalem ex veterum, recentiorum, propriisque observationibus proponens. *4to. pp. 6+494. pl. illust. Amstelodami.*

This well known and important early treatise has a frontispiece and 60 plates illustrating the comparative anatomy of numerous animals.

BLASIUS, JOHANN HEINRICH [1809–70].

1820–60. *See* NAUMANN, JOHANN ANDREAS.

1857. Naturgeschichte der Säugethiere Deutschlands und der angrenzenden Länder von Mitteleuropa. 290 abbild. im texte. *23 cm. pp. vi, 549. illust.* (Added t.-p.: Fauna der Wirbelthiere Deutschlands und der angrenzenden Länder von Mitteleuropa . . . 1. Bd. Säugethiere.) *Braunschweig.*

1857. Fauna der Wirbelthiere . . . von Mitteleuropa. Erster Band: Säugethiere. *8vo. pp. 6+549. illust.* *Braunschweig.*

An uncompleted but important systematic treatise on the zoology of middle Europe.

[**BLASIUS,** J. H. (*contd.*)]

1862. A list of the birds of Europe. Reprinted from the German, with the author's corrections. *8vo. 22 cm. pp. 24.* 'Tr. and ed. by A. Newton.'—*Brit. Mus. Catalogue (Nat. Hist.).*

This rare pamphlet, a systematic list of birds with their distribution and British references by the editor, is a translation of an unpublished MS. or privately printed paper (in German) by Prof. Blasius written in 1861. The names of four new genera are inserted. The treatise, though brief, is an important and useful 'fundamental'. The copy in hand is from the library of P. L. Sclater.

BLASIUS, RUDOLF.

1867. Über die Bildung, Structur und systematische Bedeutung der Eischaale der Vögel. *8vo. pp. 48. pl.* *Leipzig.*

1891. Systematische Uebersicht der Vögel Bayerns. *See also* JÄCKEL, A. J.

1897. Braunschweig im Jahre 1897, etc. *8vo. pp. 13+634. 3 tables. 13 pl. 3 maps. text-figs.* (Wanting.) *Braunschweig.*

In the above review of Brunswick (a *Festschrift*) the fauna in the state and surrounding regions is described, the mammals, batrachians, reptiles, and fishes by W. Blasius, the birds by R. Blasius.

1906. *See* GÄTKE, HEINRICH.

BLASIUS, WILHELM [1845–1918].

1883. Voegel von Borneo, etc. *8vo.* *Wien.*

1883. Ueber neue . . . Voegel von Celebes. *8vo.* *Braunschweig.*

1893. Verzeichniss der ornithologischen Sammlungen E. F. von Homeyer's. *4to. pp. 35.* (Museum Homeyerianum.) Ausgestopfte Vögel, Bälge, Eier und Nester. *Braunschweig.*

The celebrated Homeyer collection, described above, consisted of 1,785 stuffed birds, 5,012 bird-skins, 4,950 eggs, and 160 nests, representing in all 1,086 avian species.

1897. Neuer Beitrag zur Kenntniss der Vogelfauna von Celebes. *4to. pp. 124. pl. Braunschweig.*

1897. *See* BLASIUS, RUDOLF.

BLÄTTER FÜR AQUARIEN- UND TERRARIENKUNDE. 1890–*date. See also* NATUR UND HAUS. *Stuttgart, Magdeburg.*

BLÄTTER DES BOEMISCHEN VOGELSCHUTZ-VEREINS IN PRAG. Redakteur: Dr. Wladislaus Schier. Monthly. *Prague.* Vols. 1–3. 1880–4. (All issued.) *8vo. illust. T. of c. with each number.*

This short-lived journal contains (besides an account of the activities of the society of which it was the organ) a number of serious scientific articles, especially a paper on the migration routes of Bohemian birds.

BLEEKER, PIETER [1819–78].

1862–78. Atlas Ichthyologique des Indes Orientales Néerlandaises, etc. *9 vols. folio. many col. pl.* *Amsterdam.*

One of the most important treatises on oriental fishes by a famous ichthyologist.

1874. Poissons de Madagascar et de l'Île de la Réunion. *4to.*

This is an author's excerpt (Part 4) from Pollen and Dam's *Recherches sur la Faune de Madagascar.*

BLISS, WALTER PARKS, **SAGE,** J. H., and **BISHOP,** L. B.

1913. The birds of Connecticut, &c. *See* SAGE, J. H. and BISHOP, L. B.

BLOCH, MARCUS ELIESER [1723–99].

1782. Abhandlung von der Erzeugung der Eingeweidewürmer und dem Mitteln wider dieselben. *8vo. pp. [6]+54. 10 pl.* *Berlin.*

1782–95. Allgemeine Naturgeschichte d. Fische. *Berlin.*

A fundamental, early treatise well known to advanced research students.

1783–7. Oekonomische Naturgeschichte der Fische. 5 Bde. *216 color. Taf.* *Berlin.*

An important work on fishes.

1785–9. Ichthyologie, etc. *12 vols. 432 col. pl.*

One of the early and fundamental treatises on general ichthyology by a well-known authority. There are several translations and subsequent editions of this valuable work.

BLOEMART, ABRAHAM.

[**1640**]. [Engravings of birds, beasts and fishes.] *no t.-p. 53 pl.*

These are apparently wrongly attributed to the Dutch engraver Abraham Bloemart. They were executed on copper by a French engraver, Pierre Firens, about 1640. The cover-title bears the name of Bloemart, the engravings bear that of Firens.

BLOME, RICHARD [*d.* 1705] (**CUMING,** E. [illegible] D., *ed.*).

1929. Hawking or faulconry. *8vo. pp. (4)+vii–xxxii+123+(1). front. (fold.). 4 pl. 7 figs. glossary.* [*London.*]

The preface (by the editor) contains a general account of hawking and birds of prey from the earliest times; the remainder of the book being an exact reprint of Blome's *Hawking or Faulconry,* 1686.

BLOMEFIELD, LEONARD, originally *Rev.* LEONARD JENYNS [1800–93].

1835. A manual of British vertebrate animals: or Descriptions of all animals belonging to the classes, *Mammalia, Aves, Reptilia, Amphibia,* and *Pisces,* which have been hitherto observed in the British Islands. *8vo. pp. xxxii+559. Cambridge.*

The portion relating to the class Aves will be found on pp. 49–286, with references in the bibliography, pp. xxv–xxxii. Following the scientific name, comes the vernacular or common name of each species, with dimensions, and a description of summer and winter plumage, as well as general range and habits, etc.

1839–43. *See* Zoology of the Voyage of H.M.S. Beagle.

1846. Observations in natural history. *12mo. pp. xvi+440. T. of c. index.* *London.*

Original observations, those on birds being found on pp. 86–196. The calendar of periodic phenomena, pp. 366–428 (including birds), was made in the neighbourhood of Swaffham Bulbeck between 1820–31. The present copy is from the Mullens Library with bookplate.

1922. A naturalist's calendar kept at Swaffham Bulbeck, Cambridgeshire; ed. by Francis Darwin. 2nd ed. *12mo. pp. xviii+84.* *Cambridge.*

'BLOSSOM', VOYAGE OF THE. *See* BEECHEY, FREDERICK WILLIAM, 1839.

BLUE-BIRD.

1913–20. Published monthly (except July and August) in Co-operation with the Cleveland Bird Lovers' Association. For all those who are interested in Wild Birds and their preservation. *8vo. col. and pictured title-page. illust.* Volumes run from Dec. to Nov.; or, from October on. For example. Vol. 1 is Dec. 1909; No. 12, Nov. 1910, inclusive of the Blue bird vols. Editor: Elizabeth C. T. Miller, Cleveland, Ohio; Georgia M. Bowen, Assistant. The first vols. 1–6, No. 2, inclusive,

1697 A.D.
~~1697~~ Blome's Gentleman's Recreation in four parts. 4th ed. 800. [Thorp. 35 f — ? London]

Bälge

Blatchley, W. S. 1931. My nature nook. pp. 1-302, 15 pls. Indianapolis.

Blight, J. T. 1876. A week at the Land's End. front., illus., map. London.

Blümel. Carl. 1933. Tierplastik aus 5 Jahrtausenden
Bildwerke aus den Staatlichen Museen zu Berlin.
Berlin.

⇒ Boas, J. E. V. 1886. Spolia atlantica. 8 pls. Copenhagen.

→ 1929. Biolog.-anatom. Studien über den Hals der Vögel. M. 23 Taf.
u. 20 Fig. 4°.

were entitled *Nature and Culture*; afterwards *Blue Bird*. Eugene Swope was the first editor.

This defunct (or suspended) popular magazine did much in its day to diffuse our knowledge of American avifauna and to enlist the sympathy and co-operation of nature lovers in the campaign for bird protection. The magazine has three times at least changed its format, covers, spelling of Blue-bird, Blue bird, and Bluebird. Sometimes the numbers are separately, sometimes continuously paged.

BLUMENBACH, JOHANN FRIEDRICH [1752–1840].

1779–80. Handbuch der Naturgeschichte. 2 Thl. *8vo.* *Göttingen.*

One of the early publications of a famous scientific naturalist.

1797–1810. Abbildungen naturhistorischer Gegenstände. *12mo. 10 pts. in 1 vol. 100 pl.* *Göttingen.*

Nos. 1–100 with separate title-pages. 100 copper plates of men (portraits) and lower animals (a few colored) including 19 of birds, of which nine are colored. These 100 plates are accompanied by descriptive text. They include an interesting (composite) picture of the Dodo.

1803. Manuel d'histoire naturelle, tr. de l'allemand par Soulange Artaud. *2 vols. 8vo. pl. portr.* *Metz.*

The fifth section of the first volume is on birds, pp. 170–280. There are plates of the Secretary Bird of the Cape, the Scarlet Creeper of Hawaii, the Green Creeper of New Zealand, and the Dodo of Mauritius and Réunion. Blumenbach's nine orders of birds are: Accipitres, Levirostres, Pici, Coraces, Passeres, Gallinae, Struthiones, Grallae, Anseres.

1825. A manual of the elements of natural history; tr. from the 10th Germ. ed. by R. T. Gore. *8vo. pp. (10)+415+(1)+xiv. 2 pl. T. of c. index.* *London.*

This work is divided into twelve sections, of which Section V contains the text relating to birds, pp. 79–130, together with a bibliography.

1830. Handbuch der Naturgeschichte. Zwölfte rechtmässige Ausgabe. *8vo. pp. x+668. 2 pl. front. portr. index.* *Göttingen.*

The twelfth (and perhaps best) edition of this well-known text-book, containing much valuable information for the student of systematic zoology. There is in this library an English edition, a translation of the tenth German printing.

1855. Aller Sing- und Stubenvögel, etc. *2 col. pl.* *Wien.*

1865. The anthropological treatises of Johann Friedrich Blumenbach. . . . Tr. and ed. from the Latin, German, and French originals, by Thomas Bendyshe. *8vo. pp. 14+406. 4 pl.* (Half-title: Publications of the Anthropological society of London.) [O.]

BLYTH, EDWARD [1810–73].

1836. The natural history of Selborne. *See* WHITE, *Rev.* GILBERT.

1840. Cuvier's Animal kingdom, arranged according to its organization; forming the basis for a natural history of animals, and an introduction to comparative anatomy. Mammalia, birds and reptiles. *See also* CUVIER, G. L. C. F. D. *Baron.*

1849–[1852]. Catalogue of the birds in the museum [of the] Asiatic Society. *8vo. pp. 34+403.* *Calcutta.*

This valuable and well-known catalogue lists specimens from all the zoological regions and its publication extended over four years. To the main body of the text are added seven appendices bringing the synonymy of the various species to date of final publication in 1852. The copy in hand has an A.L.S. of Dr. Jerdon to the author.

1851. The animal kingdom. By G. Cuvier, translated and adapted to the present state of science. The mammalia, birds, and reptiles by E. Blyth, &c. *See* CUVIER, G. L. C. F. D. *Baron.*

1875. Catalogue of Mammals and Birds of Burma. *8vo. pp. 14+167.* *London.*

A work of importance to research students, in which the mammalian records are edited by J. Anderson and G. E. Dobson, the birds by Viscount Walden.

**** and **TEGETMEIER,** WILLIAM B.

1881. The natural history of the cranes. A monograph by the late Edward Blyth, greatly enlarged, and reprinted, with numerous illustrations, by W. B. Tegetmeier. *4to. pp. vi+(2)+91+(1). front. (col.). 6 pl. (1 col., 1 fold.). 20 figs. T. of c. append. index.* *London.*

A reprint of Blyth's papers from the *Field*, 1873, which with additions from other sources and illustrations, now makes the work a summary of nearly all that is known respecting this interesting group. Tegetmeier recognizes 16 species. The rare *Grus nigricollis*, met with by the traveller Prejevalsky on the banks of the Koko-nor, is copied from the Russian original.

BOARDMAN, GEORGE A. and **VERRILL,** A. E. [1862]. Catalogue of the birds found in the vicinity of Calais, Maine, and about the islands at the mouth of the Bay of Fundy. *8vo. pp. 122–7+130–2.*

Primarily not intended for publication, but afterwards rewritten by Verrill, who incorporated some of his own observations made at Grand Menan in 1859. The list contains the names of about 180 species. (From the *Proc. Bost. Soc. Nat. Hist.*, vol. ix, Sept. 1862.)

1903. The Naturalist on the Saint Croix, etc. *Bangor, Maine.*

BOAS, JOHAN ERIK VESTI [1855–].

1881. Bidrag til Kundskaben om Cunus arteriosus og Arteriebuerne hos Amphibierne. *8vo. pp. 100. illust.* *Kopenhagen.*

1890. Lehrbuch der Zoologie.

One of the most approved text-books on the subject.

1912. Ohrknorpel und äusseres Ohr der Säugetiere; eine vergleichend-anatomische Untersuchung. *pp. 6+226. 25 pl.* *Kopenhagen.*

BOATE, GERARD [1604–50].

1726–55. A natural history of Ireland in three parts. By Several Hands, etc. *4to. pp. iv+213. 10 pl. and text-figs.* *Dublin.*

A quaint description, including some natural history. One of the 'Several Hands' is Sir Thomas Molyneux who wrote part III, in the library copy (posthumously?) dated 1755. There were probably several printings of the Parts.

1755. Ireland's Natural History. *1 vol. 8vo. London.*

BOCHART, SAMUEL [1599–1667].

1663. Hierozoicon; sive, Bipertitum opus de animalibus Sacrae Scripturae. Pars prior agit libris quatuor de animalibus in genere et de quadrupedibus viviparis et oviparis; pars posterior agit libris sex de avibus, serpentibus, insectis, aquaticis et fabulosis animalibus; cum indice septuplici. *2 vols. in 1. folio.* *Londini.*

The *editio princeps* of this famous work, in which one finds a curious history of the animal life of the bible. The author, an erudite Frenchman and Protestant clergyman, discusses the (ancient) natural history of the horse and the ass as well as of most other animals (birds, insects, fish, serpents) mentioned in Holy Writ as well as accounts of them in secular works.

1675. Hierozoicon; sive, Bipertitum opus de animalibus S. Scripturae, cuius pars prior libris IV, De animalibus in genere & de quadrupedibus, viviparis & oviparis: pars posterior libris VI, De avibus, serpentibus, insectis, aquaticis & fabulosis

[**BOCHART,** S. (*contd.*)]
animalibus agit; cum indice septuplici. Revisum atque correctum . . . opera atque studio David Clodii. *2 vols. in 1. folio. portr.* *Francofurti ad Moenum.*

A revised, second (Latin) edition of this well known treatise.

1692. Hierozoicon. 3rd Latin ed. Copies in both the Blacker and Osler libraries. *Leyden.*

1712. Hierozoicon. 4th ed. *folio.* *Lug. Batav.*

There are, also, several other printings, for example, a German edition published 1793–6, in Leipzig.

BOCOURT, FIRMIN (1819–92].
1870. Études sur les Reptiles et les Batraciens. *4to.* *Paris.*

This is a separate of the joint work, part III (with A. H. A. Duméril), of the *Mission scientifique au Mexique* (q.v.).

BOCQUILLON-LIMOUSIN, HENRI [1834–1905].
1871. Manuel d'histoire naturelle médicale. *2 vols. illust.* *Paris.*

A short section in vol. I (pp. 342–67) is devoted to the structure, uses, and classification of birds.

BODDAERT, PIETER [*fl.* 1784] (TEGETMEIER, W. B., *ed.*).
[**1874**]. Reprint of Boddaert's Table des Planches enluminéez d'histoire naturelle. Includes reproduction of original t.-p.: Table des Planches enluminéez d'histoire naturelle, de M. d'Aubenton . . . precedé d'une notice des principaux ouvrages zoologiques enluminés. Utrecht, 1783. *pp.* (*4*)+(*4*)+*v–xv*+(*1*)+*58.* *London.*

Exact reprint of this exceedingly rare book of which only a very few copies were printed at the time of publication at Utrecht in 1783. Only two copies are known to exist in the United Kingdom, one in the Banksian Library, and the second in private hands. Its present value to zoologists is due to its applying for the first time, to very many species, the presently received system of scientific nomenclature, and thus fixing, by reason of priority, the names of a considerable number of genera and species.

BODLEY HEAD NATURAL HISTORY.
1913–14. Vols. 1–2. British birds. Passeres. *See* CUMING, E. W. D.

BOECKING, A. E.
1894. The Nandu. Author's excerpt. *pp. 22.* *San Antonio, Texas.*

BOEHMISCHES MUSEUM FÜR NATUR- UND LANDESKUNDE. *Prague.*
1830–1. Jahrbücher.

BOERHAAVE, H. *See* SEBA, ALBERTUS, 1734–65.

BOETTGER, O. *See* BREHM, A. E., 1890–3.

BOGHDANOV, MODEST NĪLOLAEVĪCH [1841–88].
1879. Ptitzui Kavhaza [Birds of the Caucasus]. *8vo. pp. 188+9.* [Society of naturalists at the Imperial Kazan University.] In Russian. *Kazan.*

A valuable contribution to the study of Birds of the Caucasus, separately printed with a new title-page, with script translation into English. 323 species are listed and described. The copy in hand was presented by the author to P. L. Sclater.

1884. Conspectus avium Imperii Rossici. *folio. pp. 122.* Fasciculus I (all pub.). *St. Petersburg.*

A treatise on the Russian avifauna, five orders being described in this part. A full synonymy with distribution of the species is furnished. There is, also, an account of several new forms. The text is in parallel columns of Russian and French. The present copy is from the Godman Library.

BOHADSCH, JOANNES BAPTISTA [1724–72].
1761. De quibusdam animalibus marinis eorumque proprietatibus, orbi litterario vel nondum vel minus notis, liber; cum nonullis tabulis aeri incisis. *8vo. pp. 18+169. 12 pl.* *Dresdae.*

BÖHM, RICHARD [1854–84].
1888. Von Sansibar zum Tanganjika, Briefe aus Ostafrika; mit einer biographischen Skizze hrsg. von Herman Schalow. *8vo. pp. 36+171. portr. map.* *Leipzig.*

BÖHMEN.
1869–1920. Arkiv f. d. naturwissenschaftl. Landesdurchforschung von Böhmen. *Prague.*

BOHN'S ILLUSTRATED LIBRARY. The feathered tribes of the British Islands.

There are many other titles of importance to the student of vertebrate zoology published by this well-known Library; for example, an edition of Gilbert White's *Natural History of Selborne*, and two editions of W. B. Carpenter's *Zoology*, 1857 and 1866. The latter are in the Scientific Section.

BOITARD, PIERRE [1789–1859].
1827. Manuel d'histoire naturelle . . . les trois règnes. *2 vols. 18mo. 2 pts. numerous col. and plain figs.* *Paris.*

This copy was presented to the Library by Sir Donald Smith. The classification of birds adopted is that of Temminck, containing 16 orders instead of Cuvier's six orders. Very rare. Not in the Br. Mus. Nat. Hist. Library.
Englemann's *Bib. Histor.-Naturalis*, i. 145, gives a complete collation of this work.

1842. Le Jardin des Plantes à Paris, etc. *4to. illust.* *Paris.*

BOLAM, GEORGE [1859–].
1912. Birds of Northumberland and the Eastern Borders. *8vo. photo title. pp.* [*iv*]+*xvii*+*726. 27 pl. T. of c. index.* *Alnwick.*

A full account of the avian species in the area given, evidencing a wide and personal experience of English bird-life.

BOLETIM DO MUSEO PARAENSE DE HISTORIA NATURAL E ETHNOGRAPHIA, PARÁ, BRAZIL. *See* MUSEO GOELDI DE HISTORIA NATURAL, PARÁ.

BOLETIN D. (R.) ACADEMIA DE CIENCIAS Y ARTES DE BARCELONA. 1840–2. *See* (R.) ACADEMIA DE CIENCIAS . . . BARCELONA.

BOLETÍN NACIONAL DE HISTORIA, GEOGRAFÍA Y CIENCIAS NATURALES.
1912–13. *Havana.*

BOLETÍN DE PESCAS. (Instituto Español de Oceanografía.) 1916–*date*. *Madrid.*

BOLINGBROKE, HENRY [1785–1855].
1809. A voyage to the Demerary, containing a statistical account of the settlements there, and of those on the Essequebo, the Berbice, and other contiguous rivers of Guyana. *8vo. pp. 224. front.* (*map fold.*). *index.* *London.*

The sketch of these settlements is in great part copied from successive letters written by the author to his family, in the course of a seven years' residence at Stabrock, without any view to publication. The peculiar and singular birds are described on pp. 136–40. The contents of the above letters originally appeared in a fine quarto volume.

←Bolau, H. 1883. Die Schafzucht. 2v. 23 col. pl. Berlin.

←Boitard and Corbie. 1824. Les pigeons de volière et de colombier ou hist. nat. et monographie des pigeons domestiques. 238p. 25pl.

←Böker, H. 1929. Die Biolog. Anatomie d. Hungarin d. Vögel u. ihre Phylogenie. M. 20 Tab. u. 112 Fig.

←Bolau, George. 1913. Wild life in Wales. 8vo. pp. 405, 62 illus.

Bollettino dei Musei di Zoologia ed Anatomia comp. della R. Università di Torino. 1886 – 1932. ? 47 vols. + continuation

Bölsche, W.
→ The Redpath Library has the English trans. of his most famous work: Das Liebesleben in der Natur.
→ Bolton, J. 1903. Beasts and birds. front., illus.

BOLLACK, Léon [1859–].

1914. L'emploi rationnel de la plume des oiseaux sauvages. *8vo. pp. 69+(2). T. of c. bibliogr.* *Paris.*

A pamphlet on the rational marketing of birds' feathers.

BOLLES, Frank [1856–94].

1891. Land of the lingering snow. Chronicles of a stroller in New England from January to June. *12mo. pp. (4)+234. T. of c. index.* *Boston.*

In these chronicles very many references to birds occur under such headings as: the first Bluebirds, the coming of the birds, the Vesper song of the Woodcock, Wood ducks, and bloodroot, a forest anthem, the Bittern's love song, Warbler Sunday, and in the Wren orchard.

1893. At the north of Bearcamp water. Chronicles of a stroller in New England from July to December. *16mo. pp. (4)+297. T. of c.* *Boston.*

Interesting accounts of visits to this locality in New Hampshire, which embrace climbing Bear Mountain and Chocurua, etc. References to birds are numerous and occur throughout the volume. The present copy is of the second edition, the first being published in the same year.

1894. From Blomidon to Smoky, and other papers. *8vo. pp. 4+278. index.* 'First published in different periodicals between the years 1890 and 1894.' *Boston and New York.*

Deals mostly with birds of Nova Scotia and New Hampshire.

BOLLETTINO, DELL' ISTITUTO ZOOLOGICO DELLA R. Università di Roma.

1923–7. Vols. 1–5.

BOLLETTINO DEI NATURALISTE, COLLETTORE, etc. *Later* RIVISTA ITALIANA DI SCIENZE NATURALI.

BOLLETTINO DELLE PUBBLICAZIONI ITALIANE. 1886–1900. *Florence.*

BOLLETTINO DELLA SOCIETÀ ZOOLOGICA ITALIANA. ? **1891**–*date.*

BOLOGNA. Memorie d. (R.) Accademia delle Scienze dell' Istituto. *See* (R.) ACCADEMIA . . . BOLOGNA. **1850–1907.** (Wanting.)

BOLOGNA. Memor. della Classe di Scienze fisiche.

1908–*date. See* (R.) ACCADEMIA DELLE SCIENZE . . . BOLOGNA.

BOLOGNA. *See* ANNALI DI STORIA NATURALE.

BÖLSCHE, Wilhelm.

1917. Stammbau der Tiere. *illust.* *Stuttgart.*

BOLTON, Henry Carrington [1843–1915].

1898. Catalogue of Scientific and Technical Periodicals, 1665–1895. 2nd ed.

BOLTON, James (*fl.* 1775–95].

1794. Harmonia ruralis: or, An essay towards a natural history of British song birds. *2 vols.*

The first edition of this well-known work that has passed through many editions.

1824. Harmonia Ruralis, etc. 2nd ed. *2 vols. 4to.*

1830. Harmonia ruralis . . . illustrated with figures, the size of life, of the birds, male and female, in their most natural attitudes; their nests and eggs, etc. *2 vols. in 1. 4to.* Vol. 1, *pp. xxiv+(2)+66. front. (col.). 40 pl. (col.). T. of c.* Vol. 2, *pp. (2)+96+(4). 40 pl. (col.). 1 table.* *London.*

Popular descriptions of some British song-birds, with accounts of their habits and nidification, the table at the end of vol. 2 denoting the comparative merit of their singing.

1845. Harmonia ruralis, etc. A new ed. *2 vols. in 1. 4to.* Vol. 1, *pp. xxiv+(4)+66+(2). front. (col.). 40 pl. (col.). T. of c. 1 table.* Vol. 2, *pp. (2)+96+(2). 40 pl. (col.).* *London.*

BOMBAY BRANCH OF ROYAL ASIATIC SOCIETY OF GREAT BRITAIN AND IRELAND. *See* ROYAL ASIATIC SOCIETY . . . BOMBAY BRANCH.

BOMBAY. Natural History Society, Journal.

1886–*date.* *Bombay.*

The Society was founded in 1883 'for the purpose of exchanging notes and observations on Zoology and exhibiting interesting specimens of animal life'. Its illustrated journal, which is issued quarterly as far as possible, contains articles dealing with Natural History subjects of scientific and popular interest contributed mainly by members. As a scientific journal it ranks amongst the most important publications issued in the East and is an indispensable aid to the study of the Oriental Fauna and Flora. On the popular side its articles appeal to the sportsman and naturalist the world over.

BONAPARTE, Charles Lucien Jules Laurent, *Prince de Canino* [1803–57].

1825–33. American ornithology; or, The natural history of birds inhabiting the United States, not given by Wilson. With figures drawn, engraved, and coloured, from nature. *4 vols. folio.* Vol. I, *pp. vi+(2)+105. 9 pl. (col.). index.* Vol. II, *pp. vii+(3)+95. 6 pl. (col.). index.* Vol. III, *pp. (4)+60. 6 pl. (col.). index.* Vol. IV, *pp. (4)+142. 6 pl. (col.). index.* *Philadelphia.*

This work forms a supplement to Alexander Wilson's *American Ornithology*, 1808–14, and is included in Jardine's later edition of that work, 1832, as a 'Continuation of Wilson's American Ornithology by Charles Lucien Bonaparte'. It is included, also, in the Jameson edition of 1831 and the 'Popular Edition' of 1864, but under the proper title of 'Bonaparte's American Ornithology'. In all of these, however, Bonaparte's name is joined with Wilson's on the title-pages. The present work was originally planned in three volumes. The plates are mostly by Titian R. Peale and A. Rider, with part of one plate by Audubon; engraved by Alex. Lawson and colored by hand.

1826. Observations on the nomenclature of Wilson's ornithology. *8vo. pp. 250.* Reprinted from Academy of natural science of Philadelphia, *Journal*, vols. 3–5. *Philadelphia.*

Coues furnishes the dates and numbers of the *Journal* in which this publication first appeared. The treatise is a critique of Wilson's *American Ornithology*, 1808–14, particularly as regards the nomenclature.

[? **1826**]. General synopsis of Mammalia inhabiting North America.

Appendix to J. D. Godman's *American Natural History* (q.v.).

1827. Specchio comparativo delle ornitologie di Roma. e di Filadelfia. *8vo. pp. xvi+17–80.* Estratto dal No. XXXIII. del Nuovo Giornale de' Letterati.

A repaged excerpt from the Godman library, intended to contrast the birds of Rome with those of Philadelphia. 247 species of the former are placed in longitudinal columns with 281 of the latter to illustrate their relationship. In each instance the vernacular as well as the zoological names are given, with occasional brief descriptive notes. A second edition of this monograph appeared in 1832.

1828. The genera of North American birds and a synopsis of the species found within the territory of the United States. *8vo. pp. 284.* Ex. from the *Annals of the Lyceum of Natural History of New York.* *New York.*

This synopsis was earlier promised in the preface to the continuation

[BONAPARTE, C. L. J. L., *Prince de Canino (contd.)*]

of Wilson's *Ornithology*, and issued before the final publication of that work. In the present copy it is given a somewhat different title from the heading of the article in the *Annals* in that the words 'systematically arranged in Orders and Families' are omitted from the former.

1832. Supplemento allo specchio comparativo delle ornitologie di Roma e Filadelfia. *8vo. pp. 15.*

A repaged separate containing corrections of and additions to his earlier *Specchio comparativo*, 1827. Occasionally, as in one of the copies in this library, both works are bound as one volume.

1832–41. Iconografia della fauna italica per le quattro classi degli animali vertebrati. *3 vols. 38½ × 28 cm. 180 col. pl.* Issued in 30 parts. *Roma.*

A bibliographic account of this work by Tommaso Salvadori, giving collation, date of publication of the various parts, and index of the species illustrated, is given in *Bollettino dei Musei di zoologia ed anatomia comparata della R. Università di Torino*, vol. iii, no. 48 (June 20, 1888).

1838. A geographical and comparative list of the birds of Europe and North America. *pp. 7+67. London.*

The student is referred to a review of the above important item in the *Ann. Mag. Nat. Hist.*, June 1838, p. 318.
The species, with some new names, are arranged in parallel columns with appropriate notes.

1840. Prodromus systematis ornithologiae. *8vo. pp. 26. n.p.*

The present copy of this tractate is from the library of G. R. Gray, and has numerous marginal notes by him. It is entirely in Latin and briefly lists the diagnostic characters of the eight orders as well as the families and subfamilies of the Subclass Insessores. It may be regarded as an introduction to the author's *Systema ornithologiae.*

1846. Catalogo metodico dei pesci Europei. *4to. Napoli.*

1850–7. Conspectus generum avium. Auctore Carolo Luciano Bonaparte . . . Lugduni Batavorum. *2 vols. 4to.* Vol. I, *pp. 543.* Vol. II, *pp. 232.* Index added in 1865 by F. H. O. Finsch.

Dr. Jerdon's copy with interleaved notes. There is also another copy in the E.S.W. Library, bound with Finsch's Index.

1850. Revue critique de l'Ornithologie européenne de M. le docteur Degland (de Lille). Lettre à M. de Selys Longchamps. *12mo. 18½ cm. pp. 206.* 'Conspectus systematis ornithologiæ', pp. [115]–125. 'Conspectus avium europæarum', pp. [127]–206. *Brussels.*

In addition to criticizing Degland's treatise (q.v.) in this letter to de Selys Longchamps, Bonaparte adds the above-named monographs. In the latter are catalogued the genera, families, and species of 530 European birds, with a short synonymy and account of their distribution. The present copy is from the Godman library with the following note, in the handwriting of the distinguished author: 'To Mr. G. R. Gray, Ornithologist to the British Museum, London. This book is now sent for the third time. I hope it will reach [you] with all the others.'

1850. Notice sur les travaux zoologiques. *4to. Paris.*

Author's reprint of a small but important article.

1853–7. [Ornithological papers.] *12 vols. in 1. 4to. pp. 35+323. Paris.*

This work (principally extracts from the *Comptes rendus des Séances de l'Académie des Sciences*, with MS. notes and T. of c.) comprises the classification of birds by series, the publication of which was urged upon Prince Lucien Bonaparte by fellow zoologists. The collection includes a note giving a correct history of the edible birds' nests of Java and other Eastern countries. This last is dated 1855.

1854. Conspectus systematis ornithologiae. *8vo. pp. 48. no t.-p.* [Ann. Sci. nat., ser. 4, vol. 1, 1854. Separately printed.]

In this classification, which antedates that of Huxley by ten years, the Struthiones are given the highest rank since, in the author's opinion, they tend towards the Mammalia, whereas, he says, the aberrant species of mammals tend towards the reptiles.

1854. Notes ornithologiques sur les collections rapportées en 1853 par M. A. Delattre de son voyage en Californie et dans le Nicaragua. *4to. Paris.*

This tractate is valuable especially for students of American bird-life.

1856. Catalogue des oiseaux d'Europe offerts en 1856 aux ornithologistes. *See* PARZUDAKI, ÉMILE.

1857–8. Iconographie des pigeons non figurés par Mme Knip (Mlle Pauline Decourcelles) dans les deux volumes de MM Temminck et Florent Prevost par Charles-Lucien Bonaparte Ouvrage servant d'illustration à son Histoire Naturelle des Pigeons. *super-roy. folio. 5 prelim. ll. 62 ll. of text. 55 col. pl. irregularly numbered 1–140 in descriptive text (not on plates). T. of c. Paris.*

Largely a posthumous treatise, edited by A. Moquin-Tandon. It was originally intended that the work should be issued in 30 livraisons of 150 plates, but Prince Bonaparte died after the publication of the fourth livraison leaving both MS. and plates incomplete. Some copies are incomplete, but the present one, from the library of J. H. and Richard J. Gurney, is quite complete. The hand-colored bird portraits are extremely fine.

1857. Iconographie des perroquets, etc. *See* SOUANCÉ, CHARLES DE.

BONAVIA, EMMANUEL.

1895. Studies in the Evolution of Animals. *8vo. Westminster.*

BOND, JOHN WALPOLE.

1914. Field-studies of some rarer British birds. *8vo. pp. ix+(2)+305. T. of c. London.*

Most of the species described are really scarce, or extremely local, while a few others, notably the Kite, are very rare indeed.

BONDE, C. VON and **GILCHRIST,** J. D. F.

1922. Practical zoology for medical and junior students. *See* GILCHRIST, J. D. F.

BONER, CHARLES [1815–70].

1861. Forest creatures. *pp. 8+245. pl. London.*

BONFADINI, VITA.

1672. La caccia dell' Arcobugio, con la prattica del tirare in volo, in aere, & à borita. *pp. 96. illust. Bologna.*

BONHOTE, JOHN LEWIS [1875–1922].

1903–7. *See* ANNANDALE and ROBINSON.

1907. Birds of Britain, with 100 illustrations in colour selected by H. E. Dresser from his 'Birds of Europe'. *8vo. pp. x+405. front. (col.). 99 pl. (col.). 1 fig. index. London.*

A popular but scientific account of the haunts and habits, etc., of the species treated.

[1917]. Birds of Britain. *8vo. pp. x+405. front. (col.). 99 pl. (col.). 1 fig. (diagr.). index. London.*

Apparently differing in no way from the original issue of 1907. Reprinted also in 1912 and 1914.

1919. Birds of Britain.

Another printing of this popular work.

1923. Birds of Britain and their eggs. *8vo. pp. vii+405. front. (col.). 32 pl. (col.). 1 fig. index. London.*

First published in 1907 (q.v.), and reprinted 1917 (q.v.), under the title *Birds of Britain*, with 100 colored illustrations. In the present edition the colored plates have been reduced to 33, of which three are of eggs, these not appearing in the original issue. The text, however, is the same as that of the first edition.

BONITE, LA, VOYAGE OF. *See* VAILLANT, AUGUSTE NICOLAS, 1841–52.

1828. Also copy with interesting frontmances.
The library copy has a supplement.

1831. Saggio di una distribuzione metodica degli animali vertebrati etc. Roma 2nd copy very rare in Br. M.

→ Bond. Richard M. Extract. from Condor. Eating Habits of Falcons. Mar/36.

Bonaparte, Prince Louis-Lucien (1813-1891): third son of Prince Lucien 4th younger brother of the Great Napoleon Bonaparte + younger brother of Prince C.L.J.L. Bonaparte (supra). [1884.] Names of European Reptiles in Neo-Latin.
800. pp. 43. T. of C. Philological Society, London. Wrappers.

→ Bonsdorff, E. J. 1869. Kritik d. Deutung d. Furcula bei d. Vögeln. 4pto.

BONN. Naturhistorischer Verein der preussischen Rheinlande, Westfalens und des Reg.-Bezirks Osnabrueck.
1844–*date*. Verhandlungen. *8vo. pl. maps.* From 1854–94 their Sitzungsberichte are included in the Verhandlungen, 1895–? published separately. *Bonn.*

1844–83. Autoren und Sachregister zu Band 1–40 (1844–83). *1 vol.* *Bonn.*

BONNATERRE, Jos. P. [1752–1804].
1788. Tableau encyclopédique et méthodique des trois règnes de la nature, . . . *Ichthyologie. Paris.*
The atlas (of fishes) forms vol. 5 of the *Tableau encyclopédique*, consists of 102 plates, and is separately issued.

****. **1789–1823.** *See* ENCYCLOPÉDIE MÉTHODIQUE.

BONNER, Mary G.
n.d. Daddy's Bedtime Bird Stories. *12mo. col. pl.*

BONNET, Charles [1720–93].
1769. Contemplation de la Nature. 2nd ed. *2 vols.*

1779–83. Œuvres d'histoire naturelle et de philosophie de Charles Bonnet . . . *18 vols. 20 cm. front. (portr.). 56 fold. pl. fold. tab. Neuchatel.*
Contents. t. 1. Traité d'insectologie.—t. 2. Observations diverses sur les insectes.—t. 3. Mémoires d'histoire naturelle.—t. 4. Recherches sur l'usage des feuilles.—t. 5–6. Corps organisés.—t. 7–9. Contemplation de la nature.—t. 10. Écrits d'histoire naturelle.—t. 11. Écrits et lettres d'histoire naturelle.—t. 12. Lettres sur divers sujets d'histoire naturelle.—t. 13–14. Essai analytique sur les facultés de l'ame.—t. 15–16. La palingénésie philosophique.—t. 17. Essai de psychologie.—t. 18. Écrits divers.

BONPLAND, A. J. A. *See* HUMBOLDT and BONPLAND, 1805–37.

BONONI, A.
1884–95. Avifauna Tridentina. 6 parte. *Rovereto.*

BOODE, Eduard.
1909. Die Sängerin der Nacht. *pp. 328. illust. Regensburg.*

BOOK ABOUT BIRDS. n.d. *See* ANONYMOUS.

(THE) BOOK OF BIRDS; intended for the amusement and instruction of young people.
1851. *See* ANONYMOUS.

(THE) BOOK OF NATURE STUDY. By PYCRAFT, W. P. (Wanting.)

(A) BOOK OF ORNITHOLOGY FOR YOUTH.
1832. *See* ANONYMOUS.

BOOTH, Edward Thomas [1840–90].
1881–7. Rough notes on the birds observed during twenty-five years' shooting and collecting in the British islands; with plates from drawings by E. Neale. *3 vols. folio. pl. London.*

1901. Catalogue of the cases of birds in the Dyke Road Museum, Brighton, giving a few descriptive notes and the localities in which the specimens were found. 3rd ed. *8vo. pp. xii+232. front. 23 pl. index. Brighton.*
A reprint of E. T. Booth's *Descriptive Catalogue*, with a few additions by A. F. Griffiths, who gives a biography of the author, description of additional cases, and an index. The first edition was issued in 1876, the second in 1896, and the fifth in 1927 (q.v.). The present copy has two autograph letters (inserted) from Mr. Griffiths to Dr. P. L. Sclater on matters connected with the museum.

1927. Catalogue of cases of birds in the Dyke Road Museum, Brighton. 5th ed. (With 31 illustrations.) *8vo. pp. xxvi+290. front. (portr.). 30 pl. index. Brighton.*
An enlarged edition of that of 1901 with further notes by A. F. Griffiths on some additional cases added to the collection.

BORASTON, John Maclair.
1905. Birds by land and sea; the record of a year's work with field-glass and camera. *8vo. pp. xiv+(1)+281+(1). front. 51 pl. T. of c. index. London.*
A popular record of observations made by the author in the neighbourhood of Stratford, England, from September 1902 to September 1903.

1921. British birds and their eggs, with a new method of Identification. *8vo. pp. ix+(1)+301. front. (col.). 135 pl. (col.). index. London.*
A popular guide to the birds of the British Islands, arranged according to a new plan, i.e. by grouping them under such headings as 'Black-and-White Birds', 'Ruddy-Breasted Birds', 'Trunk-Climbing Birds', etc., which the author claims has the obvious merit of presenting birds to the beginner as he himself sees them.

BORCHART, Johs.
n.d. Der Kanarienvogel; ein praktisches Handbuch über Naturgeschichte, Pflege und Zucht des Kanarienvogels. 27te verbesserte Auflage. *12mo. pp. 128. T. of c. Leipzig.*
Practical and very popular handbook for canary fanciers.

BORDEAUX.
1823–4. Le Musée d'Aquitaine. *3 vols.* (all pub.). (Periodical.)

BORDEAUX. SOCIÉTÉ DES SCIENCES PHYSIQUES ET NATURELLES.
1855–*date*. Mémoires. (Extraits des Procès-Verbaux), etc. First series **1855–75**; second series **1876–83**; third series **1884**–*date*. *8vo. Paris and Bordeaux.*

BORDEAUX. Société Linnéenne. (Founded 1818.)
1830, 1845, 1829 (1866). Bulletin d'histoire naturelle, etc. (Résumé des travaux, etc.—in tom. 3.) Tom. 1–3. *8vo. Bordeaux.*

1831–*date*. Actes. Tomes 4–6. Mélanges. Tomes 7–20. Comptes Rendus. Tomes 27– . Table . . . des Matières des dix premiers volumes, etc. There are also indexes to the second, third, and fourth series, with the last volume of each.

BORELLI, Giovanni Alfonso [1608–79].
1680–1. De motu animalium. *2 vols. 8vo. pl. Romae.*
This treatise (first edition) gives for the first time an explanation of the flight of birds based on the mechanical principle of the lever and the resistance of the air. It is an extremely rare volume, no edition being listed in the *Cat, Br. Museum (Nat. Hist.)*.
There is also an edition dated 1685 in the Blacker Library and another (1743) in the library of the London Zool. Soc.

1685. De motu animalium. Ed. altera, correctior et emendatior. *2 vols. 8vo. pl.* Vol. 1 has extra engr. t.-p. *Lugduni in Batavis.*
The second edition of this rare book on animal locomotion; the first appeared in Rome, dated 1680.

BORGGREVE, BERNARD.

1869. Die Vogel-Fauna von Norddeutschland; eine kritische Musterung der europäischen Vogel-Arten nach dem Gesichtspunkte ihrer Verbreitung über das nördliche Deutschland. *8vo. pp. 16+156. T. of c. index.* *Berlin.*

1878. Die Vogelschutzfrage, nach ihrer bisherigen Entwickelung und wahren Bedeutung mit besonderer Rücksicht auf die Versuche zu ihrer Lösung durch Reichsgesetzgebung und internationale Vereinbarungen. *12mo. pp. 142. T. of c.* *Berlin.*

A contribution to the protection of birds in their local and international relations. From the library of Prof. Cabanis.

1888. Die Vogelschutzfrage, etc. *pp. 180. Leipzig.*

Second edition of the original 1878 treatise.

BORINI, HENRY L.

1928. The modern food guide for cage-birds. A Text Book for experts as well as for beginners. *8vo. pp. 63+(1). 7 figs. T. of c. index.* *Brooklyn.*

A distinct improvement on the material usually published by current magazines and various books on this subject.

BORKHAUSEN, MORITZ BALTHASAR [1760–1806], and **others.**

1800–17. Teutsche Ornithologie; oder, Naturgeschichte aller Vögel Teutschlands in Naturgetreuen Abbildungen und Beschreibungen. *22 pts. in 1 vol. folio. 132 col. pl.* Herausgegeben Borkhausen, Lichthammer und Bekker dem jüngern [and afterwards] C. W. Bekker & Lembeke. *Darmstadt.*

This well-known but—even in the incomplete or 125-plate state—rare work was very irregularly issued as *Hefte*, and is generally a puzzle for cataloguers. The text is sometimes found without corresponding plates, that may be missing in quite large numbers from bound copies.
The present copy, whose illustrations are color-printed and then finished by hand, is believed to be complete and to show all the parts issued. Probably there was no original title-page; that of the present copy is the wrapper of the last or 22nd *Heft*, whose six plates make a total of 132.
The British Museum second copy (see the *Nat. Hist. Cat.* i. 202) is dated 1837–41, but that is surely an error.
A short account of the production of this great work is given on the reverse of the title-page. The concluding paragraphs read like the reports of similar predicaments in which publishers found themselves during the period 1914–21.
Note also that this is the first edition with the 'T'eutsche spelling.

BORLASE, WILLIAM [1695–1772].

1758. The natural history of Cornwall. *folio, pp. xix+326. 29 pl. (1 map fold.). T. of c. Oxford.*

An inclusive and early account of the Natural History of Cornwall.

BORRADAILE, LANCELOT ALEXANDER [1872–].

[1923]. Elementary zoology for medical students. (Oxford medical publications.) *8vo. pp. viii+378. 243 figs. T. of c. index.* *London.*

An account only of the types which are studied by students in preparation for first medical examinations. The principal part relating to birds will be found under embryology, pp. 331–6, and classification and evolution, pp. 349–58. Most of this matter is drawn from the author's larger work, *Manual of Zoology*, 1924, 4th ed.

1924. A manual of elementary zoology. 4th ed. *8vo. pp. xvi+671. front. 14 pl. 466 figs. T. of c. append. index.* *London.*

The first edition of this work appeared in 1912, a second in 1918, a third in 1920, and a fifth in 1926. The principal references to birds will be found in Chapter XIII, 'Reproduction and Sex', pp. 204–16, with a figure of the Argus Pheasant, Chapter XXIV, 'The Pigeon', pp. 436–57, and Chapter XXVII, 'Embryology', pp. 552–6, all three of the above with numerous figures in the text.

[1926]. A manual of elementary zoology. 5th ed. *8vo. pp. xvi+670. front. 15 pl. 468 figs. T. of c. append. index.* *London.*

Differs from the 4th edition in having considerable parts of Chapters I, XIII, and XXIX rewritten. An extra plate is also added and two new figures.

BORRER, WILLIAM [1814–98].

1891. The birds of Sussex. *8vo. pp. xviii+385. front. (col.). map (col.). index.* *London.*

This book consists mainly of field notes of the 297 birds recorded for the county.

BORY DE SAINT-VINCENT, JEAN BAPTISTE GEORGE MARIE [1780–1846].

1803. Essais sur les isles Fortunées et l'antique Atlantide; ou, Précis de l'histoire générale de l'archipel des Canaries. *4to. pp. 6+522. maps.* *Paris.*

1822–30. Dictionnaire Classique d'Histoire Naturelle. *17 vols. See also* AUDOUIN, J. V.

1832–6. Expédition scientifique de Morée. Section des sciences physiques. *3 vols. and (2 vols.). 4to and folio. atlas.* (Wanting.) *Paris.*

Vol. III of these important systematic reports is devoted to Zoology. Section 1 treats *Des Animaux vertébrés*, pp. 209, 55 col. pl., illust. text. Geoffroy Saint-Hilaire describes the mammals and birds; Bibron and Bory de Saint-Vincent the reptiles and fishes.

1835. Compendio d'erpetologia; o, d'istoria naturale dei rettili; tr. [from the Fr.] con aggiunte del dottore Guiseppe Balsamo. *pp. 8+251. pl.* *Milano.*

BOSGOED, DIRK MULDER.

1874. Bibliotheca ichthyologicae et piscatoria-catalogus, etc. *pp. 26+474.* *Haarlem.*

Chiefly Dutch text with, however, a preface and title in French. This useful work is an enlarged edition of the author's *Proeve eener ichthyologische bibliographie*, etc., 1868–71; the whole now superseded by Bashford Dean's monumental treatise.

BOSSCHE, GUILIELMUS VAN DEN.

1639. Historia medica, in qua libris IV. Animalium natura et eorum medica utilitas exacte & luculenter tractantur. *8vo. pp. 34+434. illust.* *Bruxellae.*

[Dr Blacker]

An early animal materia medica, in which many faunal forms are incidentally described.

BOSSI, LUIGI.

1822. Trattato delle malattie degli Uccelli, etc. *8vo.* *Milano.*

BOSTON JOURNAL OF NATURAL HISTORY.

1834–63. Vols. 1–7 (all pub.). Continued as Memoirs of Boston Society of Natural History.

BOSTON SOCIETY OF NATURAL HISTORY.

1915–*date*. Bulletin.

1878–1903? Guides for science teaching.

1862–*date*. Memoirs.

1906–14. Museum and literary bulletin.

1869–*date*. Occasional papers.

1841–*date*. Proceedings.

BOSTON ZOOLOGICAL SOCIETY.

1882–4. Quarterly Journal.

← Boeman, T. 1829. Three hundred animals. New ed. 8 vo. pp. xvi, 476.

← Boschma. 1927– Fauna van Nederland. 12 mo. Leiden.

→ Böttcher, H. 1928. Beitr. z. Kenntn. d. Morphologie u. Phylogenie d. ~~Alcanidae~~. ~~M. 7 farb. Kaf. u.~~ 11°. hornigen Vogelschnabelüberzug M. 35 Fig.

1929. Morpholog. u. phylogenet. Studien über d. hornige Fussbekleidung der Vögel. M. 19 Fig.

→ Boulart, R. 1878. Ornithologie du salon. 40 col. pl., 75 figs.

→ Boulenger, 1898-1901. Ichthyology of Lake Tanganyika. 3 pts. 20 pls.

→ Boucard, A. 1894 (?) Dup. copy. 1st ed [Dauber & Pine 75] 8vo. London. Travelling Naturalists

→ Boucard, A. 1893-5. Genera of humming birds (Kirke Swann's copy)

→ 1931. Queer Fish. (First pub. in 1925). London. (E.G. Boulenger)

BOTTARD, ALPHONSE [1854–1926].

1889. Les poissons venimeux; contribution à l'hygiène navale. *4to. pp. 198. illust.* *Paris.*

Bibliography, pp. 195–8. Presentation copy from author, with autograph.

BOUBIER, MAURICE.

1922. L'Oiseau et son Milieu. *Paris.*

1925. L'Évolution de l'Ornithologie. *1 vol. 12mo. pp. 2+308. index.* *Paris.*

An admirable, brief, and concise history of the progress of ornithology to the present day.

926. Les Oiseaux. *10 pl.* *Paris.*

BOUCARD, ADOLPHE.

1876. Catalogus avium hucusque descriptorum. *21 cm. pp. xiv, 352. T. of c.* *London.*

There are 2,456 genera and 11,031 species listed in this catalogue, which is arranged after his original ideas by the author. A French edition of the same date exists, practically identical with the present copy, a presentation to P. L. Sclater by the compiler.

1878. On Birds Collected in Costa Rica. *8vo. col. pl.*

1889. Catalogue des oiseaux de la collection Riocour. *Tours.*

1893–5. Genera of humming birds, being also a complete monograph of these birds. *8vo. pp. xiv+412. 2 indexes.* *London.*

A descriptive catalogue of the humming birds. The work was issued in parts as a supplement to the author's periodical, *The Humming Bird*, vols. II–V, forming nearly the whole of the last volume of that work. The first part was issued in 1892 and the last not later than Xmas 1895.

1894. Travels of a Naturalist.

A rare California item.

[? **1897–1900**]. [Catalogus aviarum.] Lacks t.-p. *8vo. pp. 352.*

This interesting and apparently unique copy of a well-known catalogue of birds has the chapter heading as above, *Catalogus aviarum* (*sic*), and p. 1 differs from the Brit. Mus. (1876) copy and from the same in the McGill library. It was probably a late printing withdrawn from circulation because of errors. The copy in hand has inserted an A. L. S., by Dr. Charles Richmond, who presented the work to the E.S.W. Library, commenting on this peculiar variant.

BOUDAREL, A. and **DIDIER,** R.

1921. L'art de la taxidermie au 20e siècle; &c. *See* DIDIER, R.

BOUGAINVILLE, LOUIS ANTOINE DE [1729–1811].

1771. Voyage autour du monde, 1766–69. *sq. 4to. pp. [6]+[420]. maps.* *Paris.*

De Bougainville served under Montcalm at Quebec, afterwards becoming a naval officer. As an extract from Hawkins' *Picture of Quebec* written on the fly-leaf of the present copy asserts, he 'will be placed by impartial posterity in the first rank of circumnavigators'.

1772. Voyage autour du monde par la frégate du roi La Boudeuse, et la flûte L'Étoile en 1766–69. 2e éd. *2 vols. maps.* *Paris.*

1772. Supplément au voyage; ou, Journal d'un voyage autour du mond fait par Sir Joseph Banks et D. C. Solander, Anglois, en 1768–71; tr. de l'Anglois. *pp. 16+262. illust.* *Paris.*

Remarks on the birds of the Falkland Islands will be found at p. 114 in the first volume.

1772–93. Voyage autour du monde, par la frégate du roi la Boudeuse, et la flûte l'Étoile; en 1766, 1767, 1768 & 1769. 2. éd., augm. . . . *3 vols. 8vo. fold. pl. (incl. maps, plans).* *Paris.*

Another printing of the *editio princeps*, 1772.

BOUGAINVILLE, LOUIS ANTOINE DE, *Baron. The Younger.*

1837. Journal de la navigation autour du globe de la frégate la Thétis et de la corvette l'Espérance pendant les années 1824–26. *2 vols. and atlas. illust. tab.* *Paris.*

Description of *Callocephalon australe*, the red-crowned parrot, at p. 311, vol. 2, by R. P. Lesson, who is the writer of the natural history part of the work beginning at p. 299, vol. 2. Superb illustrations of the male and female of this cockatoo on Plates 39–40.

BOUGEANT, *Rev.* GUILLAUME HYACINTHE [1690–1743].

1739. Amusement philosophique sur le langage des bestes. *12mo. pp. 2+157+7.* *Paris.*

A curious and rare book (bestiary) on the comparative physiology and sociology of birds and other animals. The author was obliged (in an appended letter) to apologize to the Church for some statements offensive to ecclesiastic sensibilities.

1740. A philosophical amusement upon the language of beasts and birds. Written originally in French by Father Bougeant, a famous Jesuit; now confined at La Flèche on account of this work. The 2nd ed. corrected. *crown 8vo. pp. (2)+66. 2 figs.* *London.*

A curious little work in which the author sets forth his reasons for believing that beasts and birds speak. The work is written in three parts: (1) Of the understanding of beasts; (2) Of the necessity of a language between beasts; (3) Of the language of beasts. For this apparently harmless dissertation the author was sent to prison. There appears to be no copy in the British Museum, nor can the date of the first issue be definitely stated.

BOULENGER, EDWARD GEORGE [1888–].

1913. Reptiles and Batrachians. *8vo. pp. 14+278. pl.* *London and New York.*

Highly desirable treatise by a world authority.

[**1926**]. A naturalist at the Zoo, . . . with 34 illustrations by L. R. Brightwell. *8vo. pp. 206. front. 33 pl.* *London.*

The habits and characters of some of the most interesting birds to be found in the London Zoo occupy pp. 123–58, the rest of the book being given up to accounts of the mammals, reptiles, fishes, and insects.

[**1927**]. Animal mysteries. Illust. by L. R. Brightwell. *8vo. pp. 214. front. 23 pl.* *London.*

Nature still presents us with a formidable array of unsolved mysteries, a few of which are touched upon in this volume. Birds figure throughout its pages under such headings as travel and migration, longevity, architects, pugilists, freaks, sacred, music, evolution, nursing fathers, etc., with four plates of illustrations.

[**1927**]. A naturalist at the dinner table. *12mo. pp. 160.* *London.*

1927. The Aquarium Book. *8vo.* *London.*

[*ca.* **1928**]. Living Animals of the World in Picture and Story. *4 vols. 4to. 2,000 illust. 50 col. pl.* *London.*

This is a popular work but consisting of contributions by various well-known scientific writers on zoology.

BOULENGER, GEORGE ALBERT [1858–].

1890. *See* BLANFORD, W. T.

1897–9. *See* FITZGERALD, E. A.

1897–8. The Tailless Batrachians of Europe. *2 pts. 8vo. pp. 3+376. 24 col. pl. 6 maps. text-figs.* *London.*

A notable treatise, Nos. 74 and 75 of the Ray Society publications.

1898–1902. *See* WILLEY, A.

1898–1902. Matériaux pour la Faune du Congo. Poissons nouveaux. Vol. I. *56 pl. additions. 10 pl.*

[**BOULENGER,** G. A. (*contd.*)]

1898–1907. *See* ANDERSON, JOHN, *editor.*

1902. *See* BR. MUS. (NAT. HIST.) 'SOUTHERN CROSS'.

1903–7. *See* ANNANDALE and ROBINSON.

1904. Fishes. Cambridge Natural History, vol. VII. *London.*

One of the best of this famous series.

1907. List of the Fishes . . . in the River Gambia. (Wanting.)

This contribution to the Budgett memorial volume is a valuable treatise on the ichthyology of West Africa.

1907. The Fishes of the Nile. *2 vols. 4to.*

1907–*date*. *See* BR. MUS. (NAT. HIST.) VOYAGE 'DISCOVERY'.

1909. *See* BR. MUS. NAT. HIST.

1910. Les Batraciens et principalement ceux d'Europe. *8vo. pp. 305.* *Paris.*

1912. *See* LYDEKKER [and others].

1913. The Snakes of Europe. *8vo. pp. x+296.* *London.*

1914–16. *See* OGILVIE-GRANT, WM. R., *editor.*

1920–1. Monograph of the Lacertidae. *2 vols. 8vo.* Vol. I. *pp. x+325.* Vol. II. *pp. viii+451.* *London.*

BOULGER, G. S. [1894–95.]

1894–5. The country month by month. *See* OWEN, J. A.

BOULOGNE-SUR-MER; Station Aquicole.

1892–1904. Annales.

1905–14. Annales. New series. (Wanting.) →

BOURCIER, JULES.

1874. Collection typique d'oiseaux mouches (Trochilidés). *8vo. pp. 12.* *Paris.*

BOURGET.

1910. Beaux Dimanches. Observations d'histoire naturelle. *illust.* *Lausanne.*

BOURJOT SAINT-HILAIRE, ALEXANDRE [1801–86].

1837–8. Histoire naturelle des perroquets, troisième volume (supplémentaire), pour faire suite aux deux volumes de Levaillant, contenant les espèces laissées inédites par cet auteur ou récemment découvertes. Ouvrage destiné à compléter une monographie figurée de la famille des psittacidés, le texte renfermant la classification, la synonymie et la description de chaque espèce; suivi d'un index général des espèces décrites dans tout l'ouvrage. Les figures lithographiées et coloriées avec soin par M. Werner. *folio. pp. 42+220. 111 col. pl. index.* *Paris.*

The titles describe accurately this beautiful monograph on parrots, with many fine hand-colored plates.

BOURNE, GILBERT CHARLES [1861–].

1900–2. An introduction to the study of the comparative anatomy of animals. *2 vols. illust.* *London.*

A valuable treatise on the subject, that passed through several editions.

1908. An introduction to the study of the comparative anatomy of animals. 2nd ed. *12mo. illust.* *London.*

1919. Comparative anatomy of animals. *2 vols.*

Another edition of a useful work.

BOURNEMOUTH NATURAL SCIENCE SOCIETY.

1908–*date*. Proceedings.

BOURNS, FRANK SWIFT and **WORCESTER,** D. C.

1894. Preliminary notes on the birds and mammals collected by the Menage scientific expedition to the Philippine Islands. *4to. pp. 64.* (Minnesota academy of natural sciences, vol. 1, no. 1.) *Minneapolis.*

1898. *See* WORCESTER, D.C.

1906. A hand-list of the birds of the Philippine Islands. *See* McGREGOR, RICHARD C.

BOUSSUETUS, FRANCISCUS [1520–72].

1558. De natura aquatilium carmen in universam G. Rondeletti, quam de piscibus marinis scripsit historiam. *2 vols. 4to. illust.* *Lugduni.*

BOUTEILLE, HIPPOLYTE.

1843. Ornithologie du Dauphiné. *2 vols.*

BOUVET, E. [1890.] *See* MOUY, G.

BOUVIER, AIMÉ.

1875. Afrique occidentale. Catalogue géographique des oiseaux recueillis par Alfred Marche et Victor de Compiègne dans leur voyage, 1872–74. *8vo. pp. 42.* Privately printed. *Paris.*

A list, with their geographic distribution, of a collection of African birds. The copy in hand is an autographed presentation to Osbert Salvin by the author. From the Godman library.

BOVALLIUS, CARL ERIK ALEXANDER [1849–1907].

1887. Resa i Central-Amerika, 1881–83. *2 vols. 8vo. pp. 508. 208 illust. pl. maps.* *Upsala.*

BOWDEN, JOHN.

1869. The naturalist in Norway; or, Notes on the wild animals, birds, fishes, and plants of that country. With some account of the principal salmon rivers. *8vo. pp. xii+(2)+263. front. (col.). 7 pl. (col.). T. of c.* *London.*

The portion of this work devoted to birds will be found in Chapters XIII–XXVI.

BOWDICH, THOMAS EDWARD [1791–1824].

1821. An analysis of the natural classification of mammalia, for the use of students and travellers. *8vo. pp. 118. 15 folding lith. pl., with explanatory captions. index. portr.* *Paris.*

Written by the 'Conductor of the Mission to Ashantee'. The figures and much of the text are copied from Cuvier. Remarks on the orders are appended by H. Kuhl. Bound up with the author's *An Introduction to the Ornithology of Cuvier.*

1821. An introduction to the Ornithology of Cuvier, for the use of Students and Travellers. *8vo. pp. 90. 21 lith. pl. (264 figs.). index.* *Paris.*

According to the preface, the text is translated from Cuvier arranged in tabular form, illustrated by figures and explained by notes. There are two title-pages, slightly different, one with Pl. I attached. The present copy belonged to Wm. Yarrell, with his autograph and address.

TRAVELING WITH THE BIRDS

By

RUDYERD BOULTON

Division of Birds,
Field Museum of Natural History

*

Illustrated by

WALTER ALOIS WEBER

America's Most Famous Bird Artist

Boulton. Rudyerd. n.d. Traveling with the Birds. 1
Ill: by Walter Alois Weber.

→ Bowles, G. 1789. Introduction a la Historia Natural, 3rd ed. Madrid. 4to

→ Bowlker, Chas. The Art of Angling etc. 16mo. Ludlow, 1814. mor. 75c

→ Bragança, C. de. 1903. Catalogo illustrado das aves de Portugal (sedentarias, de arribaçao e accidentaes). 20 col. pls. Lisbon.

→ Brabourne. 1912. Birds of South America. (Lord Brabourne's own copy with MS. additions, and corrected proofs of all that was set up of text to Vol. 2)

1825. Excursions in Madeira and Porto Santo, during the autumn of 1823, while on his third voyage to Africa. To which is added, by Mrs. Bowdich, I. A narrative of the continuance of the voyage to its completion . . . II. A description of the English settlements on the river Gambia. III. Appendix: containing zoological and botanical descriptions, and translations from the Arabic. *4to. pp. xii+278. front. (col.). 21 pl. (3 col., 3 fold.). 3 figs. T. of c. append.* *London.*

BOWLES, JOHN HOOPER and **DAWSON,** W. L.
1909. The birds of Washington, &c. *See* DAWSON, W. L.

BOXBERGER, LEO. VON.
1909. Das deutsche Vogelschutzgesetz vom 30 Mai 1908 nebst den das Flugwild betreffenden Bestimmungen der Preussischen Jagdordnung vom 15 Juli 1907. *12mo. pp. 57. index.* *Berlin.*

A summary of Prussian laws relating to bird protection to 1909.

BOYCE, WILLIAM DICKSON [1848–1923].
1922. Australia and New Zealand. *8vo. pp. (2)+v–xvii+(1)+381. front. (portr.). 296 figs. (20 birds). 1 map. (col. fold.). T. of c.* *New York.*

The notes of a newspaper reporter. Chapter V contains an account of the birds of Australia. New Zealand birds are treated in Chapter II, pp. 269–74.

BOYD, JULIA. Bewick Gleanings, etc. *See* BEWICK, THOMAS, 1886.

BOYLE, E. V. B.
1900. In praise of birds. *8vo. pp. 24.* [*London.*]

BOYSON, V. F. and **VALLENTIN,** RUPERT.
1924. The Falkland Islands. *8vo. pp. xii+(4)+13–414. front. 23 pl. 1 map (fold.). T. of c. append. bibliogr. index.* *Oxford.*

Divided into four parts: Pt. I, History; Pt. II, Industries; Pt. III, Geophysical notes; Pt. IV, Zoology. The birds by Rupert Vallentin will be found in Pt. IV, pp. 283–335, with six illustrations, and a bibliography, pp. 396–7.

BOY'S OWN BOOK OF SPORTS, BIRDS AND ANIMALS. 1848. *See* ANONYMOUS.

BRABOURNE, WYNDHAM WENTWORTH KNATCHBULL-HUGESSEN (*3rd Baron*) [1855–1915] and **CHUBB,** CHARLES.
[**1912–17**]. The birds of South America. *2 vols. 8vo and 4to.* Vol. I, *pp. xix+(1)+504. 1 map (col.). 2 indexes.* Vol. II, *pp. xi+(1). 38 pl. (col.).* *London.*

Originally, this work was to have comprised 16 volumes with 400 plates, but the death of Lord Brabourne, whilst fighting at Neuve-Chapelle in 1915, put an abrupt stop to the work. Vol. I, issued in December 1912, contains his valuable list of the birds, by far the most complete yet issued. The series of 38 beautiful plates intended for this work and contained in vol. II was issued subsequently, under separate authorship and title, as *Illustrations of the Game Birds and Waterfowl of South America*, by H. Grönvold, 1917 (q.v.). Both of these volumes in the McGill library are autographed, presentation copies.

BRACK, WENCESLAUS. *See* VOCABULARIUS RERUM.

BRADFORD, CHARLES BARKER.
[**1901.** The wild fowlers; or Sporting scenes and characters of the great lagoon. *16mo. pp. (6)+175. front. 1 pl. 32 figs. T. of c.* *New York.*

A book for sportsmen

BRADLEY, S. M. *See* SCIENCE LECTURES, 1883–5.

BRADY, ANTONIO [1811–81].
1874. Catalogue of the Pleistocene vertebrata from the neighbourhood of Ilford, Essex, by William Davies. *8vo. pp. xxvii+74. front. 4 maps (3 sect.). append.* *London.*

The only remains that were found of the class Aves were a right humerus of an aquatic bird of the duck family (length 5.5 in.) and the upper half of a radius (length 2.7 in.).

BRAESS, MARTIN.
1901. Unsere gefiederten Freunde. Eine Sammlung ornithologischer Vorträge. *8vo. pp. 4+175. T. of c.* *Leipzig.*

A series of popular chapters on ornithologic subjects.

1903. Das heimische Vogelleben im Kreislauf des Jahres. *8vo. pp. 8+222. 1 col. pl. and numerous other illust. index.* Being pt. 1 of *Das heimische Tier- und Pflanzenleben im Kreislauf des Jahres.* *Dresden.*

This popular treatise on the seasonal life of birds was issued in six parts as part of a larger work. The present copy (in its original covers) is complete, from the Reichenow collection.

1914. Aus dem Vogelleben unserer Heimat; ornithologische Plaudereien. *8vo. pp. 8+211. index.* *München.*

Interesting and instructive chapters on bird lore and bird life. From the library of Prof. Reichenow.

[**1914**]. Heimatliches Vogelbuch; Beobachtungen unsrer heimatlichen Vogelwelt in freier Natur. *pp. 8+216. illust.* (Lebensbücher der Jugend, Bd. 25.) *Braunschweig.*

BRAISLIN, W. C.
1907. List of Birds of Long Island, N.Y. *pp. 106.* *New York.*

This important list also appears in B. F. Thompson's *History of Long Island* (q.v.).

BRAMBELL, F. W. ROGERS.
1930. The Development of Sex in Vertebrates. *8vo. pp. 16+261. 24 pl. 25 figs. in text. index.*

A scientific treatise on the subject with an Introduction by Julian S. Huxley.

BRANDER, A. A. DUNBAR.
1923. Wild Animals in Central India. *8vo. pp. 16+296. illust. index.*

A popular account of many Indian mammals, a systematic list of which (with the trivial names) is given in the Appendix.

BRANDT, JOHANN FRIEDRICH [1802–79].
1835. Mammalium exoticorum novorum vel minus rite cognitorum Musei Academici Zoologici descriptiones et icones. *pp. 2+106. 19 pl. (3 col.).* Author's repr. from *Acad. Imp. Sci. St. Pétersbourg. Mém.* Ser. VI, tom. 2 & 3. *Petropoli.*

1835. Prodromus descriptionis animalium ab C. H. Mertensio in orbis terrarum circumnavigatione observatorum. Fascic. 1. *4to. pp. 75. 6 tab. col.* *Petropoli.*

No more published.

1836. Descriptiones et icones avium Rossicor. nov. Fasc. I. (unic.). *4to. 6 tab. col.* *Petrop.*

Second printing of the first and only part published of a projected work on the birds of Russia.

[**1837**]. Beiträge zur Kenntniss der Naturgeschichte der Vögel, mit besonderer Beziehung auf Skeletbau und vergleichende Zoologie. Ab-

[**BRANDT,** J. F. (*contd.*)]

handl. 1–6. *folio. pp.* [*156*]. *20 pl.* (Excerpt from *Acad. imp. Sci. St. Pétersbourg. Mém.* ser. vi, tom. v, pt. 2.)

This copy of Brandt's osteology of birds (1837) was presented by the late Professor Alfred Newton to his friend and pupil Mr. Manson-Bahr, author of the *Birds of Fiji*, and by him given to Dr. Casey A. Wood.

1839. Beiträge zur Kenntniss der Naturgeschichte der Vögel. Abhandl. 1–6. *4to. pp. 6+154. 19 pl.* (All pub.) Erste Lieferung. (Repr. from *Acad. imp. sci. de St. Pétersbourg. Mémoires,* ser. 6, vol. 5, pt. 2.) *St. Petersburg.*

A study of the comparative anatomy of birds in six parts, probably all that appeared. The monograph is devoted almost entirely to avian osteology and is admirably illustrated. The copy in hand is separately entitled and bound—from the P. L. Sclater collection.

1839. Spicilegia ornithologica exotica. Fascicules I. *folio. pp. 37. 5 pl.* No more published. Repr. from *Mémoires de l'Acad. impériale des sciences de St. Pétersbourg,* sér. VI, t. V, 2 ptie. *Petropoli.*

A reprint of the first fascicle of the complete paper.

[**1847**]. Fuligulam (Lampronettam) Fischeri novam avium Rossicarum speciem praemissis observationibus ad Fuligularum generis sectionum et subgenerum quorundam characteres et affinitates spectantibus. *folio. pp. 19. 1 pl.* (*col.*). *Petropoli.*

A separate, specially paged imprint of the author's paper of the same title, occupying pp. 1–16 of the *Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg,* Ser. VI, vol. VIII, pt. 2, February 1848. It was published in this separate form in advance of the Journal. New generic and specific names appear in the paper.

BRASHER, Rex.

1930. Birds and trees of North America. *12 vols. 70 col. pl. in each vol.* Paintings of all the birds of the North American continent. 100 sets published. (Wanting.) *Kent, Conn., U.S.A.*

This magnificent series of colored drawings is described by Dr. Cushman Murphy as follows: 'I believe that no such project has been attempted since the time of Audubon, and of course the number of species and forms of North American birds known to-day is more than double that recognized at the time of the pioneer painter-ornithologist. Mr. Brasher's nine hundred paintings include some twenty-five hundred figures, showing the plumage differences of the sexes in adult birds, as well as variations due to age and season. The great majority of the birds are painted life-size, and all are shown associated with proper vegetation, both birds and plants being drawn as artistically as is consistent with scientific accuracy.'

BRASIL, Louis.

1913. Genera Avium. *See* WYTSMAN, P., 1913–14.

1914. Les oiseaux d'eau, de rivage et de marais de France, de Belgique & des îles Britanniques. *8vo. pp. 338. 142 text-figs. index. Paris.*

An account, written especially for 'sportsmen', of 223 water and shore birds, with short descriptions of the species, their habits, etc. The woodcuts are excellent. The present copy is from the Godman library in the original wrappers.

BRAUER, August.

1909–*date*. Die Süsswasserfauna Deutschlands, etc. *8vo.* 19 Hefte. *Jena.*

The title is somewhat misleading as articles on the vertebrates of middle Europe are given. In Heft 1, pp. 4+206, with text-figs., P. Matschie describes the mammalia, A. Reichenow the aves, G. Tornier the reptiles and amphibia, and P. Pappenheim the pisces.

BRAYTON, A. W. *See* OHIO, STATE OF, 1882. Mammals.

BRAZIER, John. *See* AUSTRALIAN MUSEUM, 1892.

BRAZIL. Commissão de Linhas Telegraphicas . . . de Matta Grosso ao Amazonas.

(1914)–16. Estudo e reconhecimentos. Vol. I. *4to. pp. 363+29. 35 pl. 1 map. figs. in text.* (Wanting.) *Rio de Janeiro.*

This otherwise extensive study of the flora and fauna of Brazil has so far only one article on vertebrates, issued in 1914, viz. Mammiferos, pp. 49+3, 25 pl., illustrations in the text. An *Annexo* (Nos. 1–6) to the whole report was issued in 1909–16.

BREADY, Marcia Brownwell.

1929. The European Starling on its westward way, etc. *8vo. pp. 26+141. col. front. illust. N.Y.*

A history of the steady progress of *Sturnus v. vulgaris* from the release of 80 birds in N.Y. Central Park 50 years ago to their invasion and enormous increase throughout most of North America from Canada to Florida. Although carelessly written, evidently by an amateur, it has many points of interest, especially observations about the varied musical song of the species.

BRECK, Edward [1861–].

1910. Wilderness pets at Camp Buckshaw. *8vo. pp. xi+(1)+239+(1). front. 15 pl. 14 figs. T. of c. London.*

A popular account of the doings of wild pets, amongst which were young Great black-backed Gulls and Loons, with illustrations of episodes in their lives.

BREDER, Chas. M.

1929. Field Book of Marine Fishes of the Atlantic Coast from Labrador to Texas. *12mo. pp. 38+332. 8 col. pl. 403 text illust. N.Y.*

A useful little pocket book for field work, with identification key and bibliography.

BREDSDORFF, J. H.

1817. Classificatio Rerum Naturalium. *Hafniae.*

BREE, Charles Robert [1811–86].

1859–63. A history of the birds of Europe, not observed in the British Isles. *4 vols. 4to. col. front. col. pl. T. of c.* Bibliography, vol. 4, pp. [245]–8. Vol. I. 1859. *pp. 1+xv+1+207. 60 col. pl. T. of c.* Vol. II. 1860. *pp. iv+203. 60 col. pl. T. of c.* Vol. III. 1862. *pp. iv+247. 60 col. pl. T. of c.* Vol. IV. 1863. *pp. xvi+250. 58 col. pl. T. of c. index. List of European birds. London.*

This admirable descriptive treatise was issued at irregular intervals in (about) 60 parts. It furnishes the synonymy, generic characters, distribution, and habits of those birds of Europe seen outside the British Isles.

1875–6. A history of the birds of Europe, not observed in the British Isles. 2nd ed. enl. *5 vols. 4to. col. pl. T. of c.* Vol. I. 1875. *pp. ix+3+150. 54 pl.; 53 col. T. of c.* Vol. II. 1875. *pp. iv+471. 53 col. pl. 1 fig. in text. T. of c.* Vol. III. 1875. *pp. iv+176. 50 col. pl. T. of c.* Vol. IV. 1875. *pp. iv+180. 51 col. pl. 1 fig. in text. T. of c.* Vol. V. 1876. *pp. iv+175. 45 col. pl. 2 text-figs. T. of c. general index. London.*

An enlarged and corrected edition, with an amended 'List of European Birds' and a bibliography. See note on first edition, 1859–63.

BREHM, Alfred Edmund [1829–84].

1861. Das Leben der Vögel. Dargestellt für Haus und Familie. *4to. pp. 20+707. 27 col. pl. T. of c. index.* Issued in parts. *Glogau.*

An *édition de luxe* of this well-known but scarce first edition on popular ornithology. The above copy (in the original tinted covers) is from the Cabanis-Reichenow collection. The author, a famous ornithologist, has published numerous works on avian life, the majority of which have been many times translated and reprinted.

→ Braunschweig. 1910. Blätt. Aquar. Terr. Fr. 21. Jg. 509-11.

Brassey, Sir Thomas and Lady. A voyage in the "Sunbeam": Several. illust. 8th ed. 1879. London

→1862. Reiseskizzen aus Nord-Ost-Afrika ... gesammelt auf seinen in den Jahren 1847-52 unternommenen Reisen. 2d ed. 3 pts. Jena.

→1832. Handbuch für den Liebhaber der Stuben-, Haus- und aller der Zähmung werthen Vögel. 8 col. plo. + figs. Nürnberg.

äns

1864–9. Illustrirtes Thierleben, etc. *6 vols. 8vo. Hildburghausen.*

This is the six-volume printing of a very popular history of animal life that has been widely translated and published in many editions.

1867. Leben der Vögel. 2te Aufl. *Glogau.*

[1869–73]. Cassell's book of birds from the text of A. E. Brehm, by Thomas Rymer Jones. *4 vols. 40 col. pl. 420 text-figs. T. of c. index.*

This amended translation with notes of a portion of Brehm's famous *Illustrirtes Thierleben* is generally issued undated. There are two copies in the E.S.W. Library, one published in four volumes, as an *édition de luxe*, with decorated covers; the other bound in two vols. Collation of the four volumes: Vol. I, *pp. viii+312. 10 col. pl. 111 text-figs.* Vol. II, *pp. viii+320. 10 col. pl. 112 text-figs.* Vol. III, *pp. viii+312. 10 col. pl. 112 text-figs.* Vol. IV, *pp. viii+312. 10 col. pl. 85 text-figs. London and New York.*

1871–4. Bird-life; being a history of the bird, its structure, and habits, together with sketches of fifty different species. Tr. from the German by H. M. Labouchere and W. Jesse. *8vo. pp. xxvi+898. 11 col. pl. (incl. front.). T. of c. index.* Issued in parts.

One of several translations of Brehm's *Das Leben der Vögel.*

1872–6. Gefangene Vögel. Ein Hand- und Lehrbuch für Liebhaber und Pfleger einheimischer und fremdländischer Käfigvögel. *2 vols. 4to. T. of c. indexes.* Vol. I, *3 pts. pp. viii+626+2. 2 col. pl.* Vol. II, *1 pt. [all]. pp. iv+827. 2 col. pl. Leipzig.*

This popular work on cage-birds, etc., is the product of some dozen hands, among them Baldamus, Cabanis, *et al.* It ranks among the first of its class as a German handbook.

1890–3. Illustrirtes Thierleben, etc. Dritte Auflage von E. Pechuel-Loesche. *10 vols. 8vo. illust. Leipzig.*

This is one of the most elaborate and best illustrated semi-popular treatises on animal life ever issued. The mammals (vols. I–III), birds (IV–VI), and fishes (VIII) are edited by Pechuel-Loesche and W. Haacke; the reptiles and amphibia by P.-L. and O. Boettger.

1895. Animals of the World. *Chicago.*

An English translation of the well known *Thierleben*, from the third German edition.

1896. From the North Pole to the Equator. Tr. by M. E. Thomson. *8vo. London.*

1911–13. Die Vögel, Neubearbeitung von William Marshall, vollendet von F. Hempelmann und O. zur Strassen. *4 vols. 4to. T. of c. index.* From Brehm's *Tierleben*, vols. 6–9. Vol. I, *pp. viii+498. 36 col. pl. 100 figs. in text.* Vol. II, *pp. xiv+492. 39 col. pl. 85 figs. in text.* Vol. III, *pp. xii+472. 32 col. pl. 85 text-figs.* Vol. IV, *pp. xvi+565+568. 40 pl. (27 col.). 9 double plates (photos), 2 plates of eggs, and 3 maps. Leipzig.*

This excellent treatise, although retaining the popular style and most of the original text of the author, has been fully brought up to date by the editors.

1911–18. Allgemeine Kunde des Tierreichs. (O. L. zur Strassen.) 4th ed. *13 vols. 4to. 3,231 pl. and text-figs. (279 col.). Leipzig.*

This is a late and enlarged edition of Brehm's *Tierleben*, with hundreds of colored and plain illustrations and over 3,000 pages of descriptive text.

1924. Das kleine Brehm. Das ges. Tierreich aus Brehm's Tierleben . . . M. Kahle. *8vo. 116 figs. 29 pl. (4 col.). Berlin.*

n.d. Merveilles de la nature. *15 vols.*

A complete French edition, with notes, of the author's *Tierleben.*

n.d. Les oiseaux. Ed. Française revue par Z. Gerbe. *2 vols. T. of c. indexes.* (From Merveilles de la nature: l'homme et les animaux, 13 vols.) Vol. I, *pp. xxvi+790+1. 19 pl. 215 figs. in text.* Vol. II, *pp. [1]+905+1. 20 pl. 205 figs. in text. Paris.*

The ornithological volumes of Brehm's *L'homme et Les Animaux* must be rarer than the other series as 'Les Oiseaux' is not mentioned in any of the ordinary catalogues. The present copy, in the Blacker Library, appears to be mostly a French translation of the German text with, however, considerable additions by the able editor, Z. Gerbe.

BREHM, Christian Ludwig [1787–1864].

1820–2. Beiträge zur Vögelkunde in vollständigen Beschreibungen mehrerer neu entdeckter und vieler seltener, oder nicht gehörig beobachteter deutscher Vögel, mit fünf Kupfertafeln von C. L. Brehm und [Wilhelm Schilling]. *3 vols. 12mo. Neustadt-an-der-Orla.*

This is a fundamental work for the study not only of German ornithology but of ornithology in general.

1823–4. Lehrbuch der Naturgeschichte aller europäischen Vögel. *2 vols. 12mo. col. front.* Vol. I, *pp. xii+416. 1 col. pl.* Vol. II, *pp. viii+417+1047. index. Jena.*

An important work for the student, since several new species of European birds are described. The copy in hand is part of the Cabanis-Reichenow collection.

1831. Handbuch der Naturgeschichte aller Vögel Deutschlands. *8vo. col. pl. Ilmenau.*

A classic treatise on mid-European avifauna.

1836. Der Vogelfang. *8vo. pp. 4+158. pl. and figs. in text. index. Leipzig.*

Extracted from the *Allgemein. Encyclopädie d. ges. Land- u. Hauswirt. d. Deutschen.* A Register at the end has been added.

1842–55. Monographie der Papageien; oder, Vollständige Naturgeschichte aller bis jetzt bekannten Papageien mit getreuen und ausgemalten Abbildungen, im Vereine mit andern Naturforschern. Hefte 1–10, 12–14. *Jena.*

Lacking Heft 11 of 14. A well written and well illustrated treatise on parrots.

1855. Der vollständige Vogelfang; eine gründliche Anleitung alle europäischen Vögel zu fangen, mit besonderer Berücksichtigung der Vogelstellerei der Franzosen und Afrikaner. *8vo. pp. xxviii+416. 2 pl. index. Weimar.*

An important and early classic; a descriptive list of the Birds of Europe interesting to the research student on account of the mention of species new to science. It is also a handbook for the dealer and huntsman as it describes the means of trapping birds of various kinds.

1865. Kanarienvögel, Sprosser, etc. *7 pl. Weimar.*

1866. Verzeichniss der nachgelassenen Sammlung (meist) europäischer Vögel. *8vo. pp. 15. [Hamburg.]*

A list of 6,973 bird skins in the collection of Ch. L. Brehm under their systematic names, representing in all 673 species, mostly of European birds.

1872. Vogelhaus u. seine Bewohner. 3 Aufl. *Weimar.*

n.d. Die Eier der Europaeischen Voegel. Mit einer Beschreibung des Nestbaues gemeinschaftlich bearbeitet mit L. Brehm, &c. *folio.* *See* BAEDEKER, F. W. J.

BREMEN. Geographische Gesellschaft.

1873–4. Die zweite deutsche Nordpolarfahrt in den Jahren 1869 und 1870, unter Führung des Kapitan Karl Koldewey. *2 vols. 4to. illust. portr. pl. maps. Leipzig.*

BREMEN. Naturwissenschaftl. Verein zu Bremen.

1864–*date.* Abhandlungen (u. Jahresbericht mit Index).

BRENCHLEY, JULIUS LUCIUS [1817?–73].

1873. Jottings during the cruise of H.M.S. Curaçoa among the South Sea Islands in 1865. *8vo. pp. xxviii+487. front. (col. fold.). 59 pl. (44 col., 21 birds). 1 map (col. fold.). 37 figs. T. of c. index.* *London.*

Jottings made whilst a guest on board the 'Curaçoa', the natural history notices being written by various specialists from the collections of the author. The notice relating to the birds concerns only those that are new, or especially rare to science, and has been written by G. R. Gray, with 21 beautifully colored plates by J. Smit.

BRENTANO'S AQUATIC MONTHLY AND SPORTING GAZETEER. *See* AQUATIC MONTHLY AND NAUTICAL REVIEW.

BRESLICH, W. and **KOEPERT,** OTTO.

1893. Bilder aus dem Tier- und Pflanzenreiche für Schule und Haus. *8vo. pl. 2.* *Altenburg.*

CONTENTS. Vögel, Reptilien, Amphibien.

These are word-pictures of a number of familiar birds, ranging from eagles to canaries and ostriches. There are references to folk-lore and superstitions regarding the healing powers of some of the birds, especially the magpie and the crossbill.

BRETSCHER, KONRAD.

1915. Der Vogelzug im schweizerischen Mittelland in seinem Zusammenhang mit den Witterungsverhältnissen. *folio. pp. [46]. 3 fold. tables.* Repr. from Schweizerische naturforschende Gesellschaft. Neue Denkschriften, vol. 51, Abh. 2. *Zürich.*

Author's edition of a brochure on avian migration in the interior of Switzerland as affected by weather conditions.

BREUGEL, H. G. v.

1794–6. Naspooringen aangaande de oönlogie of eierkunde en de oorspronkel. voortteeling v. menschen en beesten. *pp. 584.* *Dordr.*

It is said of this rare treatise that it is a contribution to 'de voogeleieren, de hoender-eieren in 't bijzonder, natuurl. broeding d. eieren d. de vogels zelve, de konstige uitbroeding, enz'.

BREWER, THOMAS MAYO [1814–80].

1854. *See* ALEX. WILSON'S AMERICAN ORNITHOLOGY.

1857. Smithsonian contributions to knowledge. North American oölogy; being an account of the habits and geographical distribution of the birds of North America during their breeding season; with figures and descriptions of their eggs. Part 1. *4to. pp. (2)+viii+132. 5 pl. (col., 76 figs.). T. of c. addend. index.* *Washington.*

Published in June 1857, separately, as above. Later it was reprinted and published with the same pagination, but with the second title, only, in vol. XI of the *Contributions*, dated 1859. The plates in the latter are not colored. There are several errors in the names of certain eggs figured, which have been noted by Coues. The work was never completed. Enclosed in a pocket at the end of the volume is a photograph of a set of Duck Hawk's eggs with other sketches.

[**1859**]. Smithsonian contributions to knowledge. North American oölogy. Part 1.—Raptores and Fissirostres. *folio. pp. viii+132. 5 pl. (76 figs.). T. of c. addend. index.* [*Cambridge?*]

This is the reprint with the same text and pagination as the first issue, 1857 (q.v.), but with the second title only, and the plates plain instead of colored. There is no place of publication on the title-page.

****, **BAIRD,** S. F., and **RIDGWAY,** R.

1874. A history of North American birds. Land birds. *See also* BAIRD, S. F. and RIDGWAY, R.

1875. *See* BAIRD, S. F.

1875. Catalogue of the birds of New England. With brief notes indicating the manner and character of their presence; with a list of species included in previous catalogues believed to have been wrongly classed as birds of New England. *8vo. pp. 21.* *Boston.*

An annotated list of 336 species of New England birds, followed by a list of 29 species which the author has withdrawn. Reprint from the *Proceedings of the Boston Society of Natural History*, vol. XVII, March 3, 1875.

1884. The water birds of North America. *See also* BAIRD, S. F. and RIDGWAY, R.

BREWSTER, WILLIAM [1851–].

1879. Description of First Plumages of North American Birds. *8vo.* (Wanting.)

1886. The code of nomenclature and check-list of North American birds adopted by the American ornithologists' Union. . . *See* AMERICAN ORNITHOLOGISTS' UNION.

1886. Bird migration. *4to. pp. 22.*

Author's separate (Memoirs Nuttall Ornith. Club, No. 1); part I treating nocturnal bird-flights at a lighthouse in the Bay of Funday, and part II the general subject of bird migration.

1889. Descriptions of supposed new birds from western North America and Mexico. *8vo. pp. 85–98.* [*New York.*]

Author's reprint from the *Auk*, 1889. The ten supposed new birds here treated consist of five species and five subspecies.

1895. Second and revised Check-list of North American birds. *See* AM. ORNITH. UNION.

1895. The land-birds and game-birds of New England. *See* MINOT, HENRY DAVIS.

1902. Birds of the cape regions of Lower California. With one map. *8vo. pp. (2)+241+(1). map (fold.). bibliogr. index.* *Cambridge.*

The basis of this monograph consists of a collection of 'upwards of 4,400 birds' made for the author by Mr. M. Abbott Frazar in 1887.

1906. The Birds of the Cambridge Region of Massachusetts. Four plates and three maps. *8vo. pp. 426. front. (portr.). index.* *Cambridge, Mass.*

The best work on the birds of a given region, without details of description or synonymy, but with full notes on distribution, habits, seasonal occurrence, and much historical data. Mem. IV of the Nuttall Ornith. Club.

1910. Check-list of North American birds. Prepared by a committee of the American Ornithologists' Union. Third edition (revised). *See* AMERICAN ORNITHOLOGISTS' UNION.

1924. Birds of Lake Umbagog. *8vo. Cambridge.*

BREWSTER ORNITHOLOGICAL CLUB.

1899. Bulletin. No. 1. *pp. 3.* *Worcester, Mass.*

The Compiler has not seen this publication, which is listed in the Braislin sale catalogue, 1923.

BRIDGE, THOMAS WILLIAM [1848–1909].

1904. Fishes (exclusive of the systematic account of Teleostei). *London, New York.*

BRIGHTON. Dyke Road Museum.

1901. Catalogue of the cases of birds in the . . . Museum, &c. 3rd ed. *See* BOOTH, E. T.

1927. Catalogue of cases of birds. 5th ed. *See* BOOTH, E. T.

BRIGHTON AND HOVE NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.

1855–*date.* Abstracts of Papers.

←Bretscher, K. 1931. Der Vogelzug in der Schweiz. 4 tab. Brossch. /8/

←Brevaus, A. de. 1880. La migration des oiseaux. 2d ed. 316 p. figs. pls., map.

Brindley, Mrs H.H. 1926. Forest, steppe, and tundra; studies in animal environment. 218 p.

BRIGHTON NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.
1886–*date*? Abstracts.

BRISTOL NATURALISTS' SOCIETY.
Bristol, Eng.

1863–5. Series 1.

1866–72. Series 2.

1874–1903. Series 3.

1904–*date*. Series 4.

BRIGHTWEN, ELIZA (born ELDER), '*Mrs.* GEORGE BRIGHTWEN' [1830–1906].

1895. Inmates of my house and garden. . . . Illustrated by Theo. Carreras. *8vo. pp. (8)+9–277. front. 31 figs. T. of c.* *London.*

A collection of studies of natural history, a few of which had already appeared in *Nature Notes* and in the *Girls' Own Paper*. Four of these studies relate to the following birds: viz. Whitethroat, Brown Owl, Willow-Wrens, Tame Doves, and a fifth to feeding Wild Birds in Winter.

1897. More about wild nature. Illust. by the author. 3rd ed. *12mo. pp. xvi+261. front. (portr.). 20 pl. 3 figs. T. of c.* *London.*

Popular stories about wild animals. There is also a chapter on how to make books of feathers, and home museums, the book being intended principally for young people.

1897. Wild nature won by kindness. Illust. [5th ed.] *12mo. pp. (2)+230. 3 pl. 91 figs. T. of c.* *London.*

Little papers on natural history—including several on birds—written in a pleasing and popular style. The 1st edition appeared in 1890, the 2nd the same year, and the 3rd 1897 (and subsequent editions).

1909. Eliza Brightwen, the life and thoughts of a naturalist; ed. by W. H. Chesson, with introd. and epilogue by Edmund Gosse. *8vo. pp. xxxii+215. front. (portr.). 1 pl. (portr.). index.* *London.*

The autobiography, journal (1855–72), and thoughts (1892–5) of this talented naturalist. Many references to English birds occur throughout the volume.

BRIGHTWEN SERIES, THE.
1904. Bird life in wild Wales. *See* WALPOLE-BOND, J. A.

BRIMLEY, CLEMENT SAMUEL [1863–].
1919. Birds of North Carolina. *See* PEARSON, T. G. and BRIMLEY, H. H.

BRIMLEY, HERBERT HUTCHINSON [1861–].
1919. North Carolina geological and economic survey. Vol. IV. Birds of North Carolina. *See* PEARSON, T. G.

BRINK, CAREL FREDRIK.
1778. Nouvelle description du Cap de Bonne-Espérance avec un journal historique d'un voyage de terre fait par ordre du gouverneur Ryk Tulbagh dans l'intérieur de l'Afrique. *8vo. pl.* *Amsterdam.*

The plates that accompany this early volume are valuable as examples of the contemporary portraiture of some of the animals of the Cape of Good Hope, including the elephant, hippopotamus, giraffe, rhinoceros, wild boar, jerboa, and the Cape rodent mole—not the golden mole.

BRINKMANN, AUGUST [1878–].
1911. Bidrag til Kundskaben om Drøvtyggernes Hudkirtelorganer. *4to. pp. 229+3. illust.* Bibliography, pp. 210–15. *Kjøbenhavn.*

BRISSON, MATHURIN JACQUES [1723–1806].
1756. Regnum animale in classes IX distributum, etc. Le Règne animal divisé en IX classes, etc. *4to. pp. 6+382.* *Paris.*

A second and improved edition of this celebrated classic appeared in 1762, and is regarded as next in authority to the Linnaean productions. The author's methodical synopsis of the avian orders was published at Paris in 1760 and, like the present title, in parallel columns of Latin and French.

1760. Ornithologie, ou Méthode contenant la division des oiseaux en ordres, sections, genres, espèces & leurs variétés. A laquelle on a joint une description exacte de chaque espèce, avec les citations des auteurs qui en ont traité, les noms qu'ils leur ont donnés, ceux que leur ont donnés les différentes nations, & les noms vulgaires. Ouvrage enrichi de figures en taille-douce. *6 vols. 4to. pp. 253. pl. T. of c. index.* Added t.-p. in Latin. French and Latin in parallel columns. Supplément. *26 cm. 4to. pp. 146+xxii. 1 l. 6 fold. pl.* [With his Ornithologie. Paris, 1760, vol. 6.] Text in French and Latin. *Paris.*

Vol. I, *pp. xxiv+526+lxiii. pl. 37.* Vol. II, *pp. 516. pl. 46.* Vol. III, *pp. 734. pl. 37.* Vol. IV, *pp. 576. pl. 46.* Vol. V. *pp. 544. pl. 42.* Vol. VI, *pp. 543. pl. 37.* The plates are practically all folding.
This is one of the earliest of the Linnean period treatises, in which full descriptions are given of many genera and species of birds. It is a bilingual text-book, Latin predominating over French, of very great importance. J. A. Allen has published a review of Brisson's work. *Vide* his *Collation of Brisson's Genera*. The supplement, though separately paged and indexed, seems to form an integral part of the work. The present copy is a fine example from the Godman library.

1762. Regnum animale in classes IX distributum; sive, Synopsis methodica, sistens generalem animalium distributionem in classes IX. Editio altera auctior. Latin and French. *8vo. pp. 8+296.* *Lugduni Batavorum.*

An improved edition of the first printing.

1763. Ornithologia; sive Synopsis methodica sistens avium divisionem in ordines, sectiones, genera, species, ipsarumque varietates. *2 vols. 8vo. T. of c. Indexes.* Tomus I. *pp. 14+500.* Tomus II. *pp. 10+527.* *Lugduni Batavorum.*

This is a second edition of the earlier (1760) systematic treatise, giving in detail a generic and specific description of a large number of birds. The text and title are in Latin, lacking the French imprimatur of the early issue. The preface of the second volume has a bibliography and a list of works in the Publisher's library. The *supplementum ornithologiae* of the 1760 edition is lacking.

BRISTOL NATURALISTS' SOCIETY, ENGLAND.
1863–*date*. Proceedings.

BRITISH ANTARCTIC ('TERRA NOVA') EXPEDITION, 1910.
1914–23. Natural history reports, zoology. *See* BRITISH MUSEUM—NATURAL HISTORY.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.
1831–*date*. Reports. *London.*

1876. Notes on the fauna and flora of the west of Scotland. I. Mammalia, by E. R. Alston. II. Birds, by Robert Gray. III. Insects, by Peter Cameron. IV. Vascular flora, by James Ramsay. V. Cryptogamic flora, by James Stirton. *12mo. pp. xxxi+(1)+148.* *Glasgow.*

The first portion of this publication consists of 'Notes on the fauna and flora of the west of Scotland', pp. i–xxxi, the second 'A contribution towards a complete list of the fauna and flora of Clydesdale and the west of Scotland', compiled under the auspices

[**BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE** (*contd.*)]

of the Society of Field Naturalists, Glasgow, as a guide to the district, for the 1876 meeting of the British Association. The birds of Glasgow and its vicinity, by Robert Gray, will be found on pp. ix–xvi, and the list of birds which breed in the vicinity of Glasgow, by Henry C. Young, on pp. 7–10.

1908. Handbook to the city of Dublin and the surrounding District. *12mo. pp. viii+441. 37 pl. 55 figs. T. of c. index.* *Dublin.*

An excellent guide-book to the district. The annotated list of the birds is by Richard M. Barrington and occupies pp. 113–29 with two illustrations.

1911. British association, Portsmouth, 1911. Handbook and guide to Portsmouth. *16mo. pp. (8)+247. front. 6 maps (fold.). 59 figs. T. of c. index.* *Portsmouth.*

A small guide to the district, for the use of the members of the British Association. The portion dealing with the birds, by C. Foran, will be found on pp. 219–24, being a classified list under headings of some 225 species.

1912. British association, Dundee, 1912. Handbook and guide to Dundee and district. *8vo. pp. xiv+(2)+683. front. 31 pl. 6 maps (fold.) 3 col. in cover pocket. T. of c.* [*Dundee.*]

The birds of the estuary of the Tay is written by James B. Corr, assistant-curator of the Dundee Museum, and contains short notes on about 76 different species, pp. 618–25.

1913. A handbook for Birmingham and the neighbourhood. 83rd Annual meeting. *pp. (10)+637. front. 8 pl. 2 maps (col. fold. in pocket). 3 figs. (maps and plan). T. of c. index.* *Birmingham.*

Notes upon the ornithology of the district by Robert W. Chase are on pp. 490–501, with a short account of the status of each family to date.

1914. Handbook for New South Wales. *8vo. pp. 14+621. 26 pl. (2 col.). 3 maps.* *Sydney.*

In this excellent description of local Australian flora and fauna, Section II is devoted to Natural Science. The mammals and freshwater fauna are described by W. A. Haswell; birds by A. J. North; reptiles and amphibia by A. H. S. Lucas; fishes by A. R. McCulloch.

(THE) BRITISH AVIARY, AND BIRD KEEPER'S COMPANION. *See* ANONYMOUS.

(THE) BRITISH BIRD TOY AND PAINTING BOOK. *See* ANONYMOUS.

BRITISH BIRDS. **1840.** *See* ANONYMOUS.

BRITISH BIRDS. *London.*
1907–*date*. *See also* ZOOLOGIST (*London*).

BRITISH BIRDS; an illustrated magazine devoted chiefly to the birds on the British list.
1907–*date*.
Vols. 1–2 (1907–9), edited by H. F. Witherby, assisted by W. P. Pycraft.
Vols. 3–11, no. 8 (1909–18), edited by H. F. Witherby, assisted by F. C. R. Jourdain and N. F. Ticehurst.
Vols. 11 (no. 8)–12 (1918–19), edited by F. C. R. Jourdain, assisted by N. F. Ticehurst.
Vols. 13+ (1919+), edited by H. F. Witherby, assisted by F. C. R. Jourdain and N. F. Ticehurst.
Vols. 1–9 (1907–16), title reads: British birds; an illustrated magazine devoted to the birds on the British list.
Each number has a table of contents.
In January 1917 incorporated: The Zoologist.

This is the most important of the periodicals devoted to the study of British birds, eggs, and nests. Numerous observations of rare species and in particular the habits and behaviour of avian life in the United Kingdom are faithfully portrayed and illustrated. Hundreds of photographs of birds in their native habitat are given, and the migrations and 'ringing' and subsequent capture of individuals are fully recorded. A feature of this journal is the biography of British ornithologists by W. H. Mullens that runs through it. In addition to a large number of papers and notes by the editors, the names of many distinguished British writers appear on its pages.

BRITISH COLUMBIA, PROVINCIAL MUSEUM, VICTORIA.
1904. Catalogue of British Columbia birds. *See* KERMODE, FRANCIS.

1909. Provincial museum of natural history and ethnology. Victoria, British Columbia. *8vo. pp. 92. front. 39 pl. 14 figs.* *Victoria.*

Visitors' guide to the natural history and ethnological collections in the Provincial Museum. Birds are described on pp. 21–74, with six illustrations.

1912–*date*. Report.

(THE) BRITISH GUIANA HANDBOOK.
1922. *See* FRANCIS, WILLIAM.

BRITISH JOURNAL OF EXPERIMENTAL BIOLOGY. **1923**–*date.* *Edinburgh.*

BRITISH MUSEUM—Natural History.
1844-48. List of the specimens of birds in the collection of the British Museum. *See* GRAY, G. R.

1850–2. Catalogue of the specimens of mammalia in the collection of the British Museum; [by J. E. Gray]. *3 pts. in 2 vols. pl.* *London.*

1852. List of the specimens of British animals in the collection of the British Museum. Part ix. Eggs of British birds, &c. *See* GRAY, G. R.

1854. Catalogue of fish collected and described by Laurence Theodor Gronow, now in the British museum. *18½ cm. pp. 7+196.* Text in Latin, evidently written by L. T. Gronovius, printed from the MS. in the British Museum. Preface signed: John Edward Gray. *London.*

1855. Catalogue of the genera and subgenera of birds contained in the British Museum, by G. R. Gray. *12mo. pp. (4)+192. append. index.* *London.*

A complete List of the Genera and Subgenera of Birds with their chief Synonyma and Types. It commences with the *Systema Naturæ*, published by Linnaeus in 1735, the genera which are not present in the British Museum Collection being marked with a dagger to indicate desiderata.

1856. Catalogue of apodal fish, in the collection of the British museum. By Kaup. *23 cm. pp. viii +163. illust. 19 pl.* 'The German MS. of Dr. Kaup has been translated . . . by Sir John Richardson.'—Pref. *London.*

1856. Catalogue of lophobranchiate fish in the collection of the British museum. By J. J. Kaup. *18½ cm. pp. 4+80. 4 pl.* *London.*

1859. Catalogue of the birds of the tropical islands of the Pacific Ocean in the collection of the British Museum, by G. R. Gray. *8vo. pp. (4)+72. addend. index.* *London.*

A complete Catalogue of the species of Birds (with their specific names and synonyms) as found on the numerous islands of the Pacific Ocean, which are situated within the tropics between the longitudes of 134° E., and 130° W.

(British Association)

1931. Guide for the London 1931 Centenary Meeting.

1859. Catalogue of the *Mammalia* and birds of New Guinea, in the collection of the British museum. By John Edward Gray . . . and George Robert Gray. *8vo. pp. (4)+63+(1)+8. 9 figs.* *London.*

The portions relating to the birds will be found on pp. 16–53, giving the scientific names with habitat, and in some cases short descriptive notes, whilst on pp. 54–63 will be found a list of the Species of New Guinea Birds and those of the neighbouring localities.

1859–70. Catalogue of the fishes in the British museum, by Albert Günther. *8 vols. 8vo. London.*

A famous treatise, fundamental for a study of the subject.

1862. Catalogue of the bones of *Mammalia* in the collection of the British museum. *23 cm. pp. 4+296.* Compiled by Edward Gerrard. *London.*

1863. Catalogue of British birds in the collection of the British Museum; by G. R. Gray. *8vo. pp. 13+247. append.* *London.*

1866. Catalogue of seals and whales in the British museum. By John Edward Gray. 2nd ed. *23 cm. pp. 8+402. illust.* First edition was published as parts 1 and 2 of Catalogue of the specimens of *Mammalia* in the collection of the British museum, in 3 parts, 1850–2: pt. I, *Cetacea*; pt. II, Seals; pt. III, *Ungulata furcipeda.* *London.*

1868. Synopsis of the species of whales and dolphins in the collection of the British museum. (Illustrated with 37 plates, by the late William Wing.) By John Edward Gray. *31 cm. pp. 1+10. 37* (i.e. *38*) *pl.* *London.*

1869. Catalogue of carnivorous, pachydermatous, and edentate Mammalia in the British Museum; by J. E. Gray. *8vo. pp. 8+398. illust.* *London.*

1869–71. Hand-list of genera and species of birds, distinguishing those contained in the British Museum, by G. R. Gray. *3 vols. 8vo.* *See also* GRAY, G. R. *London.*

1870. Catalogue of monkeys, lemurs, and fruit-eating bats in the collection of the British museum. By Dr. J. E. Gray. *23 cm. pp. 8+137. illust.* *London.*

1871. Supplement to the Catalogue of seals and whales in the British museum. By John Edward Gray. *21½ cm. pp. 6+103. illust.* 1. Seals (Animals). 2. Whales. *London.*

1872. Catalogue of ruminant *Mammalia* (*Pecora*, Linnæus) in the British museum. By John Edward Gray. *21 cm. pp. 8+102.* *London.*

1873. Hand-list of the edentate, thick-skinned and ruminant mammals in the British museum. By Dr. J. E. Gray. Forty-two plates of skulls. *22½ cm. pp. 7+176. 42 pl.* *London.*

1874. Hand-list of seals, morses, sea-lions, and sea-bears in the British museum. By Dr. J. E. Gray. Thirty plates of skulls. *22½ cm. pp. 2+43.* *London.*

1874–98. Catalogue of the birds in the British Museum. *See* SHARPE, R. B.

1874. A guide to the exhibition rooms of the departments of natural history and antiquities. *8vo. pp. viii+153. 2 pl.* (*plans fold.*). *T. of c.* [*London.*]

The collection of animals is contained in three galleries, the birds being exhibited in wall-cases, and the eggs in the table-cases of the several rooms, as shown in the two folding plans of the building. A list of the natural history publications of the British Museum is given on pp. 143–4.

1876. Descriptive and illustrated catalogue of the fossil *Reptilia* of South Africa in the collection of the British museum. By Richard Owen. *33½ × 26½ cm. pp. 12+88. illust. 70 pl.* (*partly fold.*). *London.*

1877. Gigantic land-tortoises (living and extinct) in the collection of the British Museum, by A. C. L. G. Günther. *folio. pp. 4+96. pl.* *London.*

1878. A guide to the exhibition rooms of the departments of natural history and antiquities. *8vo. pp. 12+155.* *London.*

1884. Report on the zoological collections made in the Indo-Pacific ocean during the voyage of H.M.S. 'Alert' 1881–2. *8vo. pp. xxv+684. 54 pl.* (*8 fold., 2 col.*). *T. of c. 2 indexes.* *London.*

The report on the birds—which were obtained in the islands of Torres Straits, Queensland, and in North-western Australia—will be found on pp. 11–28, Mr. R. Bowdler Sharpe being responsible for this part of the work.

1885. Guide to the galleries of *Mammalia* (mammalian, osteological, cetacean). 57 woodcuts and 2 plans. *21½ cm. pp. 3+125. fold. plan.* Edited by A. Günther. *London.*

1885–7. Catalogue of the fossil *Mammalia*, by Richard Lydekker. *5 vols. 23 cm. illust.* *London.*

1885. Guide to the collection of fossil fishes in the Department of geology and palæontology. *21½ cm. pp. 47. illust.* *London.*

1886. Catalogue of the Blastoidea in the Geological dept. By Robert Etheridge and P. H. Carpenter. *4to. pp. 16+322. 20 pl.* *London.*

1887. Guide to the galleries of reptiles and fishes. *8vo. pp. 4+119. illust. diag.* *London.*

1888. Catalogue of the *Marsupialia* and *Monotremata*. By Oldfield Thomas. *23 cm. pp. xiii+401. 28 pl.* (*4 col.*). *London.*

1888–90. Catalogue of the fossil reptilia and amphibia in the British museum (Natural history) pt. I– . By Richard Lydekker. *8vo. illust.* *London.*

1889–1901. Catalogue of the fossil fishes. By Arthur Smith Woodward. *23 cm. illust. 4 vols. pl.* *London.*

1891. Catalogue of the fossil birds in the British Museum. *See* LYDEKKER, RICHARD.

1893. Guide to the galleries of reptiles and fishes. 101 woodcuts and 1 plan. 3rd ed. *21½ cm. pp. 4+119. fold. plan.* Prepared by Albert Günther. *London.*

1894. Guide to the galleries of mammalia (mammalian, osteological, cetacean). 57 woodcuts and 2 plans. 5th ed. *pp. 8+126.* Ed. by A. Guenther.

[**BRITISH MUSEUM — Natural History** (*contd.*)]

1895. Catalogue of the fishes in the British museum. G. A. Boulenger. 2nd ed. *8vo. pl.* *London.*

1895. A General guide to the British Museum (natural history), with plans and views of the building. *8vo. pp. (6)+7–80. front. 1 pl. 2 plans (fold.).* [*London.*]

1896. A guide to the fossil reptiles and fishes in the Department of geology and palæontology. 7th ed. *22 cm. pp. 14+129. front. illust. tab.* *London.*

1899–1909. A hand-list of the genera & species of birds [Nomenclator avium tum fossilium tum viventium]. By R. Bowdler Sharpe. *5 vols.* *London.*

1899–1909. General index of the birds. Ed. by W. R. Ogilvie-Grant. *23 cm. pp. 4+199. London.*

1900. A monograph of Christmas Island, physical features and geology, mammalia, land crustacea, &c. *See* ANDREWS, C. W.

1901–12. Catalogue of the collection of birds' eggs in the British museum (Natural history). *5 vols. 8vo.* Vols. I–II compiled by E. W. Oates; III–IV, by E. W. Oates, assisted by S. G. Reid; V, by W. R. Ogilvie-Grant. Vol. I, *pp. xxiii+252+23 (advt.). 18 pl. (col.). index.* Vol. II, *pp. xx+400+24 (advt.). 15 pl. (col.). index.* Vol. III, *pp. xxiii+349+(3)+24 (advt.). 10 pl. (col.). index.* Vol. IV, *pp. xviii+352+25 (advt.). 14 pl. (col.). index.* Vol. V, *pp. xxiii+547+(1)+30 (advt.). 22 pl. (col.). index.* *London.*

Prepared somewhat after the plan of the British Museum's *Catalogue of the Birds*, 1874–98 (q.v.), but following, with slight variations, the nomenclature of Sharpe's *Hand-list of the Genera and Species of Birds*, 1899–1909. Under each species are given a list of bibliographic references, a description of the eggs, and a list of the specimens.

1902. Guide to the galleries of mammalia in the department of zoology. 7th ed. *8vo. pp. [4]+126. illust. plan.* [*London.*]

1902. Handbook of instructions for collectors. *pp. 137. illust.* *London.*

1902. Report on the collections of natural history made in the Antarctic regions during the voyage of the 'Southern Cross'. *8vo. pp. ix+344. 53 pl. (9 col.). 31 figs. T. of c. index.* *London.*

This expedition was fitted out by Sir George Newnes in 1898, Mr. Nicolai Hanson being the Zoologist. Unfortunately he died in October 1899 and only the natural history notes from his private diary are published in the present volume. Those relating to the birds together with the specimens obtained were handed over to Mr. Bowdler Sharpe who undertook the preparation of the account of the Aves. This appears on pp. 106–73 with 20 illustrations, the extracts from the private diary of the late Nicolai Hanson just preceding it, pp. 79–105, with four illustrations, being translated from the Norwegian by his father Mr. Anton Hanson. A systematic account of the collected vertebrates is given in this admirable report. G. E. H. Barrett-Hamilton described the mammals (E. A. Wilson the seals); G. A. Boulenger the fishes.

1903–22. Catalogue of the books, manuscripts, maps and drawings. Vols. 1–6. Supplement (vol. VI) A–I. *4to.* Vol. I, A–D. *pp. viii+500.* Vol. II, E–K. *pp. (6)+501–1038.* Vol. III, L–O. *pp. (6)+1039–1494.* Vol. IV, P–SN. *pp. (6)+1495–1956.* Vol. V, SO–Z. *pp. (6)+1957–2403.* Vol. VI, Supplement A–I. *pp. (6)+511+(1). Addenda and corrigenda* Vols. I and II, A–Hooker. *pp. (2)+48.* *London.*

One of the finest and most valuable collections of Works on Natural History, the complete catalogue containing probably some sixty thousand or more entries ranged under the names of the authors of the various works. Societies and Corporate Bodies are considered to be authors of their publications, and four subject-headings for Atlases, Dictionaries, Encyclopaedias, and Gazetteers have been included, as well as official accounts of Surveys and Explorations undertaken by any Government. Magazines and Journals of a similar character are also included. Vol. I appeared on June 27, 1903; vol. II, on April 23, 1904; vol. III, on June 25, 1910; vol. IV, on May 31, 1913; vol. V, on June 26, 1915; and the Supplement, vol. VI, on March 15, 1922. The Compiler of the present Introduction and Catalogue has found these admirable volumes of the greatest value to him.

1904. Handbook of instructions for collectors. 2nd ed. *17½ cm. pp. 4+138. illust.*

'The various chapters have been written by different members of the staff of the Natural history museum'.—Pref.

1904–6. History of the collections. *2 vols. 8vo.* Appendix by Albert Günther. 1912. *pp. 10+109.* *London.*

1905. Guide to the gallery of birds in the department of zoology. *pp. iv+228. 24 pl. 7 figs. T. of c. append. index.* *London.*

By W. R. Ogilvie Grant. The plates are from photographs of actual specimens in the gallery—an extremely useful book for the student.

1905. A guide to the fossil reptiles, amphibians, and fishes in the department of geology and palaeontology. 8th ed. *8vo. pp. 18+110. illust. pl. diag.* *London.*

1905–16. Special guides, nos. 1–7. *7 vols. in 1. 4to.* *London.*

No. 1. Guide to an exhibition of old natural history books. 2. Books and portraits illustrating the history of plant classification exhibited in the department of botany. 3. Memorials of Linnaeus. 4. Memorials of Charles Darwin. 5. Guide to the exhibition of animals, plants, and minerals mentioned in the Bible. 6. Guide to the exhibition of specimens illustrating the modification of the structure of animals in relation to flight. 7. Guide to the specimens and enlarged models of insects and ticks exhibited in the Central Hall, illustrating their importance in the spread of disease.

1906. Guide to the gallery of reptilia and amphibia in the department of zoology. *8vo. pp. 4+75. illust. pl.* *London.*

1907. Guide to the great game animals (*Ungulata*) in the Department of zoology. 53 text and other figures. *21½ cm. pp. 8+93. front. illust. pl.* *London.*

Compiled by R. Lydekker.

1907. Guide to the specimens of the horse family (*Equidæ*). *21½ cm. pp. 42. pl.* *London.*

Compiled by R. Lydekker.

1907–*date*. [Report of the 'Discovery'. Voyage, 1901–4, under Capt. R. F. Scott.] *6 vols. 4to. illust.* *London.*

This memorable voyage was undertaken under the auspices of the National Antarctic Expedition, and a very complete account of South Polar fauna is given in the voluminous Report. A few of the collected specimens were obtained from the relief ship 'Morning'. In vol. II the mammals (whales and seals) are described by E. A. Wilson (1907) and (seal-embryos, vol. V) H. W. M. Tims (1910). The former article has pp. 69 and 23 pl. (2 col.), the latter pp. 21, 2 pl., and text-figs. The aves are described by E. A. Wilson, pp. 121, 36 col. pl., and W. P. Pycraft (penguins, pp. 28, 1 pl., text-figs.); fishes by G. A. Boulenger, pp. 5, 2 pl.

1908. A guide to the domesticated animals (other than horses) exhibited in the central and north halls of the British Museum. *8vo. pp. 8+54. illust. pl.* *London.*

1908. A guide to the elephants (recent and fossil) in the department of geology and palaeontology. *8vo. pp. 4+46. illust.* *London.*

1908. Guide to the gallery of fishes. *8vo. pp. 6+209. illust.* *London.*

1908. Guide to the specimens illustrating the races of mankind (anthropology). By R. Lydekker. *8vo. pp. 31. illust.* *London.*

1908. A guide to the domesticated animals (other than horses). *8vo. pp. (8)+54. 24 figs. T. of c. index.* *London.*

In this guide-book, by R. Lydekker, birds are treated on pp. 48–51, without illustrations. A second edition was published in 1912. The present copy is a presentation from the Trustees of the British Museum.

1909. A guide to the fossil mammals and birds in the dept. of geology and palaeontology. *See* WOODWARD, ARTHUR SMITH, 1909 and 1923.

1909. Catalogue of the fresh-water fishes of Africa, by George Albert Boulenger. *28½ cm. illust.* *London.*

1909. Guide to the whales, porpoises, and dolphins (order *Cetacea*). *21½ cm. pp. 47. illust. pl.* *London.*

Compiled by R. Lydekker.

1910. Monograph of the okapi, by Sir E. Ray Lankester . . . Atlas (of 48 plates) comp. with the assistance of W. G. Ridewood. *31½ cm. pp. xxii. 48 pl. (2 col.).* *London.*

'It is doubtful whether the atlas will be followed by a volume of text.'

1910–13. A descriptive catalogue of the marine reptiles of the Oxford clay. Based on the Leeds collection. Pts. 1–2. *2 vols. 33 cm. front. illust. pl.* *London.*

Each plate preceded by leaf with descriptive letterpress, by C. W. Andrews.

1910. Guide to the British vertebrates. *8vo. pp. iv+122. 27 figs. (1 plan). T. of c. append. index.* *London.*

The portion devoted to birds is on pp. 32–52, and 83–113 in the Appendix, which latter consists of a list of 442 species and subspecies of British birds, with notes in the case of the rarer species as to occurrence and where recorded.

1912. Catalogue of the *Chiroptera*. 2nd ed. by Knud Andersen. *23 cm. illust.* *London.*

1912. Catalogue of the Mammals of western Europe (exclusive of Russia), by G. S. Miller. *8vo. pp. 15+1019. text-figs.* *London.*

An extremely valuable systematic treatise.

1912. A guide to the domesticated animals other han horses. By R. Lydekker. *8vo. pp. vi+56. 25 figs. T. of c. index.* *London.*

The present edition differs from that of the first, 1908, in having one extra figure, as well as the text revised and brought up to date. The present copy is a presentation from the Trustees of the British Museum.

1912. The history of the collections. Vol. II. Appendix. General history of the department of zoology from 1856–1895 by Albert Günther. *8vo. pp. ix+109. T. of c. index.* *London.*

A valuable record of the development of the Zoological section of the British Museum from the year 1856 to the year 1895, when Dr. Günther retired from the service of the Trustees. The two volumes of which this forms an appendix were issued in 1904–6 (q.v.).

1913. Catalogue of the heads and horns of Indian big game bequeathed by A. O. Hume. By R. Lydekker. *23 cm. pp. xvi+45. illust.* *London.*

1913–16. Catalogue of the ungulate mammals, by R. Lydekker. *5 vols. 8vo. illust. portr.* *London.*

1913–*date*. Publications. Economic series. Nos. 1– .

1914. Guide to the galleries of mammals. 9th ed. *8vo. pp. 4+123. illust. pl.* *London.*

1914–22. Voyage of the 'Terra Nova', 1910. Natural History Report. *3 vols. 4to.* *London.*

Vol. I contains the zoology (so far published) of this important scientific expedition and it treats only of a few vertebrates. Fishes are described by C. T. Regan (1914); the Adélie Penguin by G. M. Levick (1915), and cetacea by D. G. Lillie (1915).

1915–26. Instructions for collectors. *8vo. pp. 222. 49 figs.* *London.*

A valuable series of 13 pamphlets with illustrations.

1917. Guide to the British fresh-water fishes. *8vo. pp. 39. illust.* *London.*

1920. Summary guide to the exhibition galleries. *pp. 16. 4 figs. (3 plans).* *London.*

1921. Instructions for collectors: No. 2.—Birds and their eggs. 7th ed. *8vo. pp. 14. 6 figs.* *London.*

Divided into three parts: I. Instructions for the preservation of the skins of birds, with three illustrations; II. How to determine the sex of a bird, with two illustrations; III. Directions for collecting eggs, with one illustration. A most valuable and practical field manual.

1922. Summary guide to the exhibition galleries. 2nd ed. *8vo. pp. 16. 4 figs. (3 plans).* *London.*

1924. Eggs of British birds; cards in colour. Series 1–4. *24mo. pp. 24. 20 pl. (col.).* *London.*

A series of drawings by H. Grönvold comprising colored figures of the eggs of 121 species of British birds, each series accompanied by a leaflet giving a short description of the nest, the number of eggs laid, and when and where they may be found.

1926. Summary guide to the exhibition galleries. 3rd ed. *8vo. pp. 16.* *London.*

BRITISH NATURALIST. *London.*
1891–3.

1894. New series.

BRITISH NORTH AMERICAN BOUNDARY COMMISSION.

1875. Report on the geology and resources of the region in the vicinity of the forty-ninth parallel, from the Lake of the Woods to the Rocky Mountains, with lists of plants and animals collected, and notes on the fossils. *See* DAWSON, G. M.

BRITISH OOLOGICAL ASSOCIATION.

1923–*date*. Bulletin, nos. 1– . *2 vols. 8vo.* Vol. I, *pp. xi+(1)+140. 1 fig. (chart). T. of c.* Vol. II, *pp. 78* (in progress). *London.*

An Association formed (1922) for the discussion of oology, exhibiting rare eggs, and generally stimulating investigation in this branch of science. Vol. I contains the reports of the first 12 meetings. Prior to this 15 meetings were held under the auspices of the British Ornithologists' Union, and the proceedings of these meetings will be found either in *The Ibis* or in the *Bulletin of the British Ornithologists' Club.*

BRITISH ORNITHOLOGISTS' CLUB.
London.

1892–*date*. Bulletin. *See* BULLETIN BR. ORNITH. CLUB.

BRITISH ORNITHOLOGISTS' CLUB MIGRATION REPORTS. 1905–22. *See* BULLETIN OF THE BRITISH ORNITHOLOGISTS' CLUB.

BRITISH ORNITHOLOGISTS' UNION.

1883. A list of British birds compiled by a Committee of the British Ornithologists' Union. *8vo. pp. xxxi+229. T. of c. index.* *London.*

An annotated list of all the birds 'of which even a single specimen has been obtained in an undoubtedly wild state within the confines of the British Islands'. The official list of the British Ornithologists' Union, now superseded by the second edition, 1915. The present copy is interleaved with MS. notes.

1905. A list of British Birds, compiled by a committee.

1915. A list of British birds, comp. by a committee. 2nd and rev. ed. *8vo. pp. xxii+430. T. of c. append. index.* *London.*

A revised, fully annotated list. Appendix I contains a list of species which have been recorded as having been found in the British Islands, but (on evidence) which the Committee do not regard as entirely satisfactory. Appendix II contains a list of 'Nomina Conservanda'. Appendix III is devoted to nomenclatorial problems and changes. Bound in with the present copy is 'Some additions and Corrections to the B.O.U. List of British Birds'. [From *The Ibis* for April 1918, pp. 234–43.]

1916. Reports on the collections made by the British ornithologists' union expedition and the Wollaston expedition in Dutch New Guinea, 1910–13. *2 vols. 4to.* Vol. I, *pp. (4)+v+(1)+22+(2)+50+10+240+235. 20 pl. (9 col., 8 of birds). 40 figs. (3 of birds). T. of c. index. London.*

This work consists, mostly, of articles previously published elsewhere, but here assembled and reprinted with both original and new pagination. Vol. I contains articles I–X; vol. II, articles XI–XX. The ornithological matter is contained in the preface, pp. i–v, by Ogilvie-Grant, in the introduction, pp. 1–22, by A. F. R. Wollaston, and in part III, pp. 1–240, by Ogilvie-Grant, the eight colored plates of the birds being by H. Grönvold. 150 copies of this work were printed, of which the present one is No. 25.

BRITISH SOCIETY OF AVICULTURE.

1918–?30. Journal. *See* JOURNAL OF THE BRITISH SOCIETY OF AVICULTURE.

BROCCHI, P. *See* MISSION SCIENTIFIQUE AU MEXIQUE, 1868–1909.

BROCKLESBY, RICHARD [1722–97].

1746. An essay . . . Mortality . . . among horned Cattle, etc. *8vo.* *London.*

BROCKMAN, RALPH EVELYN DRAKE- [1875–].

1910. The mammals of Somaliland. *8vo. pp. 18+201. pl.* *London.*

BRODERIP, WILLIAM JOHN [1789–1859].

1847. Zoological Recreations. *8vo. pp. 12+380.* *London.*

A voluminous, semi-popular writer who has several editions of his books to his credit.

1849. Zoological recreations. New ed., with additions. *8vo. pp. viii+(4)+384. T. of c.* *London.*

A series of papers which originally appeared in the *New Monthly Magazine* and are here brought together in book form. The work is divided into two parts, the first containing the matter relating to birds, pp. 1–172, whilst the latter deals with quadrupeds, etc. A fourth edition, revised and enlarged, appeared in 1860.

1852. Leaves from the Note Book of a Naturalist. *8vo.* *London.*

1858. Zoological Recreations. 3rd ed. *8vo.*

1860. Zoological recreations. 4th ed., rev. and enl. *8vo. pp. viii+(4)+382. engraved t.-p. T. of c.* *London.*

This edition differs from that of 1849 in having not only an engraved title-page but an extra one also. In other respects, the text is the same as before, except that there is no indication that the book is divided into two parts.

1865. Falconer's favourites. Contains life-sized coloured lithographs of 'all the British species of falcons at present used in falconry' with descriptive letterpress. *roy. folio. pp. 1+6 of explan. text. 6 large col. pl.* *London.*

This magnificent atlas of privately-owned falcons is intended as 'a sequel to the 1855 ed. of *Falconry in the British Isles* [q.v.], issued by F. H. Salvin and the writer, and comprises all the British species at present used in Falconry'.

1866. Memoir on the dodo. *See* OWEN, RICHARD.

1873. *See* SALVIN, FRANCIS HENRY.

BROHMER, P. and **others.**

1928–*date*. Die Tierwelt Europas. *8vo.* *Leipzig.*

This elaborate treatise, to be published in seven volumes of about 300 pages each with numerous plates and text-figures, has so far concerned itself with invertebrate zoology. A general introduction has been issued by Prof. Brohmer with a notice that the final volume (VII) will deal with Pisces, by P. Schiemenz; Amphibia by F. Werner; Reptilia by F. Werner; Aves by C. Zimmer, B. Rensch, and B. Dürigen; Mammalia by the chief editor.

BROINOWSKI, GRACIUS J.

1887–91. The birds of Australia, comprising 300 illustrations, with a descriptive account of the life and characteristic habits of over 700 species. *6 vols. in 3. folio.* Vol. I. [1887.] 1890. *58 l. 52 col. pl.* Vol. II. [1887.] *n.d. 74 l. 58 col. pl.* Vol. III. [1890.] *n.d. 63 l. 47 col. pl.* Vol. IV. 1890. *57 l. 48 col. pl.* Vol. V. 1891. *66 l. 50 col. pl.* Vol. VI. 1891. *50 l.+xxx+1. index and errata.* *Melbourne.*

This comprehensive history of Australian birds is written in semi-popular style and illustrated by chromolithographs by the author. The actual date of publication of the first volume is in doubt.

1888. The pigeons of Australia. *folio. 14 l. 11 pl. (col.).* [*Melbourne.*]

The above copy forms a small (but separately printed) portion of vol. III of the author's *The Birds of Australia*, 6 vols. In that copy no date is given for vol. III, but in the present portion it is clearly stated as 1888 on the title-page. The coloring of the plates in both copies is identical, as is also the text and the numbering of the plates 1–11. The volume forms a companion to *The Cockatoos and Nestors of Australia and New Zealand*, 1888.

1888. The cockatoos and nestors of Australia and New Zealand. *folio. 15 l. 13 pl. (col.).* [*Melbourne.*]

The above forms a small but separately printed portion of vol. III of the author's *The Birds of Australia*. The coloring of the plates in both copies is identical, as is also the text and the numbering of the plates 12–24 in Arabic, as noted in the *Ayer Catalogue* by Zimmer, who gives the date of vol. III as 1887. A good deal of confusion seems to exist as to the exact date of this volume and that of vol. I, the former apparently ante-dating the latter.

BROMME, TRAUGOTT [1802–66].

1867. Atlas till Djurrikets natural-historia för skolan och hemmet. Andra upplagan. *4to. pp. 2+30. 621 figs. 33 col. pl.* *Stockholm.*

BRONN, HEINRICH GEORG [1800–62].

1841–3. Handbuch einer Geschichte der Natur. *3 vols. 8vo.* (Bischoff, G. W. and others, Naturgeschichte d. drei Reiche.) *Stuttgart.*

On pp. 696–700 (vol. 3) there is a list of those birds to which he assigns a geological age from their footprints. In subsequent pages there are brief discussions of the relationships of birds, particularly the question of the place of the ostrich-like birds (p. 847). The traces left by birds as guano and footprints are discussed more fully in vol. 2, pp. 445–53.

← Brölemann. 1920. Myriapodes de l'Afrique orient. 14 pls.

→ Brookes, R. 1772. Natural history. 6v. 8vo. plo. ¶ 1740. The 1st ed. ill. Art of Angling etc 12mo. 12.50

→ Brown, n.d. Popular natural history. 3v.

→ Brown, C. Emerson. 1932 My animal Friends. Illus. 8vo, cloth, 262 pages. New York.

1858. Untersuchungen über die Entwickelungs-Gesetze der organischen Welt während der Bildungs-Zeit unserer Erd-Oberfläche; eine von der Französischen Akademie im Jahre 1857 gekrönte Preisschrift mit ihrer Erlaubniss Deutsch hrsg. *8vo. pp. 10–502. illust. tab.* *Stuttgart.*

1859–97. Die Klassen und Ordnungen des Thier-Reichs, etc. Bde 5. *Illust.*
Leipzig and Heidelberg.

This monumental treatise, continued after the death of the original author and editor, was written in collaboration with some half-dozen other scientists who treated systematically most branches of zoological science. Of vertebrate animals A. A. W. Hubrecht (and M. Sagemehl) wrote the chapters on Pisces (1876); C. K. Hoffmann treated Amphibia, pp. 726, 52 pl. (1873–8), and Reptilia, pp. 2,089, 170 pl., 3 vols. (1879–90); Hans Gadow and E. Selenka described the Aves, pp. 1,008, 59 pl., 2 vols. (1869–91); while C. G. Giebel and W. Leche began the Mammalia in 1874. This remarkable encyclopedia is still unfinished, but the parts already complete form a valuable work of reference in the study of general zoology.

BROOK, ARTHUR.
1920. The buzzard at home. *8vo. pp. 15. 12 pl.* ('British birds' photographic series.) *London.*

[**1924**]. Secrets of bird life, &c. *See* GILBERT, H. A.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES.
1908–*date.* Bulletin.

1904. Museum Memoirs of Natural Science.

1901–*date.* Science Bulletin.

1914–*date.* Brooklyn Museum Quarterly.

BROOKS, ALLAN [1869–].
1909. *See* DAWSON, W. L. and BOWLES, J. H. The birds of Washington; . . . Illustrated by . . . 40 drawings in the text and a series of full-page colour plates by A. Brooks.

**** and **SWARTH,** HARRY S.

1925. Cooper Ornithological Club. Pacific Coast Avifauna no. 17. A distributional list of the birds of British Columbia. . . . Contribution No. 423 from the Museum of Vertebrate Zoology of the University of California. *4to. pp. 158. front. (col.). 27 maps (1 col. fold.). 11 figs. T. of c. bibliogr. index.* *Berkeley, Calif.*

The territory covered by this list includes the whole of the province of British Columbia with the exception of the extreme north-eastern corner, that portion lying east of the Rocky Mountain divide. The list includes 409 species and subspecies exclusive of introduced species. Following the scientific and vernacular name of each species, is a list of synonyms and status of the bird, with distributional maps. A bibliography is added at the end of the volume.

1927–30. Audubon Bird Cards. *See* HADLEY, ALDEN H. NATIONAL ASSOCIATION OF AUDUBON SOCIETIES.

BROOKS, CHARLES [1795–1872].
1847. Elementary course of natural history, being an introduction to zoology intended for the college and the parlor. Elements of ornithology. *8vo. pp. 324. figs. in text. T. of c. index.* *Boston.*

BROOKS, HENRY. (MANN, R. J., *ed.*)
1876. Natal; a history and description of the colony: including its natural features, productions, industrial condition and prospects. *8vo. pp. viii+336. front. (col.). 15 pl. (5 col., 2 maps, 1 fold.). T. of c.* *London.*

This work has eight chapters, number four containing an account of the wild animal life in which birds are included (pp. 106–65).

BROOKS, JENNIE [1853–].
[**1922**]. Quests of a bird lover. *8vo. pp. 184. front. T. of c.* *Boston.*

A series of popular sketches, several of which had appeared in Lippincott's *Magazine.*

BROOKS, W. E.
1872. Notes on the ornithology of Cashmir—The swans of India—The imperial eagles. *8vo. pp. 20.*

A discussion on the status of the swans and eagles of India, and the description of a new sylvia (author's excerpt from the *Journ. As. Soc. Beng.*, 1872).

BROOKS, WILLIAM KEITH [1848–98].
1883. The Law of Heredity. *8vo.* [O.] *Baltimore.*

BROOKSBANK, FRANK HENRY.
1925. Egyptian birds, with a chapter on migration. *8vo. pp. vii+120. 27 figs. illust.* *London.*

A popular account of the commoner Egyptian birds, with a chapter on migration.

BROOKSHAW, GEORGE.
1817. Six birds, accurately drawn and coloured after nature, with full instructions for the young artist; intended as a companion to the treatise on flower painting. *folio. 6 plain and 6 col. pl. n.p.* *London.*

Sample drawings for embryo artists. They are lithographed in the usual fashion and the same plate (on opposite pages) colored as patterns for the pupil. Not listed in the *Br. Mus. Cat.* (*Nat. Hist.*).

BROOKVILLE SOCIETY OF NATURAL HISTORY. *Richmond, Ind.*
1885–8. Bulletin. (Merged into Indiana Academy of Science.)

BROOM, R. *See* NATAL, 1901–7.
1905. *See* FLINT, W.

BROTÉRIA. (Revista des Sciencias Naturaes.) *Lisbon.*
1902–6. Continued in series.

1907–*date.* Série Zoológica.

BROUSSONET, PIERRE MARIE AUGUSTE [1761–1807].
[**1782**]. Ichthyologia sistens Piscium descriptiones et icones. *4to. pp. 8+34. 11 pl.* *London.*

One of the early illustrated treatises on general ichthyology but not of much importance.

BROWN, A. M. **1867.** *See* AMERICAN NATURALIST.

BROWN, CHARLES BARRINGTON.
1876. Canoe and camp life in British Guiana. Illust. Map. *8vo. pp. x+400. front. (col.). 9 pl. (col.). 1 map (fold.). T. of c.* *London.*

An interesting account of the author's explorations in British Guiana during the years 1868–72. References to some of the more uncommon birds met with occur in almost all of the 15 chapters.

BROWN, HENRY HILTON.
n.d. By meadow, grove and stream; an introduction to nature study. *pp. 196. pl.* *London.*

BROWN, JOHN ALEXANDER HARVIE- [1844–1916].
See also HARVIE-BROWN, JOHN ALEXANDER.

1879. The capercaillie in Scotland, Edinburgh. *See also* HARVIE-BROWN, J. A.

1880–9. Reports on the migration of birds; in the autumn of 1879 and the spring of 1880 to 1887, being Reports I to IX. By J. A. Harvie-Brown, J. Cordeaux, R. M. Barrington, A. G. More, and W. Eagle Clarke. *2 vols. 8vo. 4 maps (fold.).* Vol. I, Reports I–V. Vol. II, Reports VI–IX.

Exhaustive reports, with maps showing positions of the lighthouse and light vessel stations to which schedules are sent.

BROWN, J. J.

1876. The American Angler's Guide, etc. 5th ed. *8vo. pp. 421. illust. New York.*

BROWN, J. M. **1895.** *See* CRAWFURD, OSWALD.

BROWN, NATHAN CLIFFORD.

1882–9. [Extract from the Proceedings of the Portland Society of Natural History, Dec. 4, 1882.] A catalogue of the birds known to occur in the vicinity of Portland, Me. *8vo. pp. 40.* Author's separate. *Portland, Me.*

Compiled from notes accumulated during 12 years. It contains the names of 250 species and subspecies. Fifty author's copies only were issued, the distribution of the main edition being delayed till June 14, 1889, when some supplementary notes were added, pp. 37–40, including the occurrence of eight new species.

BROWN, PETER [*fl.* 1776].

1776. New illustrations of zoology, containing fifty coloured plates of new, curious, and non-descript birds, with a few quadrupeds, reptiles and insects. *4to. pp. 4+136. 1 col. pl.* Added t.-p.: Nouvelles illustrations de zoologie. Descriptive letterpress in French and English. *London.*

Original illustrations from specimens in the collections of Marmaduke Tunstall, the British Museum, and the Royal Society. The author was known also as a flower painter, exhibiting at the Royal Academy from 1770 till 1791.

BROWN, ROBERT NEAL RUDMOSE [1879–].

1923. A naturalist at the poles; The life, work & voyages of Dr. W. S. Bruce, the polar explorer; with five chapters by W. G. Burn Murdoch. 38 illust. and 3 maps. *8vo. pp. 11–316. front. (portr.). 25 pl. 3 maps (2 col. fold.). 5 figs. T. of c. bibliogr. index. London.*

Written largely from Bruce's unpublished diaries, papers, and letters. Chapters II, III, IV, V, and XXV are by Murdoch, the remainder by Brown. References to birds are numerous and occur throughout the book, with three illustrations. An American edition appeared in 1924.

1924. A naturalist at the poles; the life, work and voyages of W. S. Bruce, the polar explorer; with 5 chapters by W. G. B. Murdoch. 38 illust. and 3 maps. *8vo. pp. 11–316. front. (portr.). 25 pl. 3 maps (2 col. fold.). 5 figs. T. of c. bibliogr. index. Philadelphia.*

The American print, which differs in no way whatever from the British edition.

BROWN, *Capt.* THOMAS [1785–1862].

1833. The zoologist's text-book, embracing the characters of the classes, orders and genera of almost the whole animal kingdom; together with an example of a species of nearly each genus, and a complete glossary of technical terms. Illustrated by one hundred and seven engravings on steel. *2 vols. in 1. cap. 8vo. pp. xii+578+(12). front. 105 pl. T. of c. glossary. index. Glasgow.*

The reference to birds will be found in vol. I, under the heading, Aves, pp. 151–282, plates nos. XXXV–LXVIII, depicting 297 species of birds together with three diagrams, all of which are by R. Scott, and, although small, are quite good. A glossary is also supplied at the end of the volume, pp. 573–8. This work is a rarity.

1834. Illustrations of the game birds of North America, chiefly the size of nature. *folio. engr. title. 16 col. pl. London.*

These hand-colored plates are mostly original; others are copied, with modifications, from the works of Bonaparte and Wilson. The present atlas is apparently an early copy, with the backgrounds of the pictures colored. Also the plate paper is watermarked 1830–4. In the second issue the backgrounds are plain and the watermark 1835. In any state the book is a very rare ornithological item. *See* Walter Faxon (*Auk*, vol. 20, 1903, p. 236) for a full account of this important work.

1835. Illustrations of the American Ornithology of Alexander Wilson and Charles Lucien Bonaparte Prince of Musignano. With the addition of numerous recently discovered species and representations of the whole sylvae of North America. *folio. pp. iv+124. col. pl. Edinburgh.*

This very rare brochure (no copy in the library of the British Museum) has only three pages of introductory text, which is occupied by a Systematic Index, 'the arrangement being that of Temminck, slightly altered, with the addition of some new genera. 161 birds have been added by the editor [to those described and depicted by Wilson and Bonaparte], and 87 birds have been considerably enlarged', each indicated by special marks. Legends furnish both the common and systematic names. The plates are very fine, some of them being renumbered in MS. or by Roman numerals pasted over the former numbers. The botanical additions, including the floral backgrounds, are of the first order of portraiture. This atlas is said to have been published as a supplement to the 1831 edition of Wilson (q.v.). The 124 hand-colored plates show 523 figures of birds.

1836. The taxidermist's manual; or, The art of collecting, preparing and preserving objects of natural history, for the use of travellers, conservateurs of museums, and private collectors. 3rd ed. *12mo. pp. xii+150. 4 (of 6) engr. pl. index and T. of c. Glasgow.*

Mullens and Swann say that this well-written and popular little work went through more than 20 editions.

1840. *See* GOLDSMITH, O., 1840–3.

1846. Illustrations of the genera of birds, embracing their generic characters; with sketches of their habits. *Nos. 1–14 in 1 vol. folio. Title to Part (vol.) I, dedication, 55 leaves of irregular text, and 59 pl. (56 col.).* (All pub.)

Author's autographed presentation copy to Mrs. G. Stanley Darbishire, Manchester, December 31, 1859. It has been compared by Mr. Gregory M. Mathews with an example in his possession, the latter being in the 14 original numbers. Mr. Mathews has numbered each leaf of text and every plate in accordance with the original numbers. Mullens and Kirke Swann give a correct statement of contents, but are in error in stating that the number of parts issued was 16. This, like the two other large books of Captain Brown, is of great rarity.

n.d. Macaws cockatoos, parrakeets, and parrots; &c. *See also* LAUDER, *Sir* T. D.

BROWNE, ALEXANDER MONTAGU.

1889. The vertebrate animals of Leicestershire and Rutland. 4 pl. and map. *4to. pp. xii+223. front. (map col.). 4 pl. (2 col.). addend. index. Birmingham.*

A table is also given showing the arrival of summer migrants in Leicestershire from 1843–55 and 1877–88.

BROWNE, DANIEL JAY [b. 1804].

1851. The American bird fancier; considered with reference to the breeding, rearing, feeding, management, and peculiarities of cage and house birds. *12mo. pp. 107. front. 28 figs. index. New York.*

A compilation. Another edition was issued in 1857 (q.v.

←Brown, J. (186-). Illustrative anecdotes of birds, fishes and insects. pp. 322, front., plo.

←Brown, Capt. T. n.d. Popular natural history. 3v. 800. col. pls.

→ Browne, M. 189-. Practical taxidermy. front., pls.

→ Brownson. W. H. 1903-1904. Scrap book of his newspaper contributions on birds. /s. /n

→ Brunette, Dr. William. 1929. American Duck, Goose and Brant Shooting. 8vo, buckram, gilt, pp. 415. New York.

→ Brusse, M. J. 1910. Eine Tieransiedelung in der grossen Stadt. 110 p. Darmstadt.

1857. The American bird fancier. *pp. 107. 29 figs. index.* *New York.*

Another edition of a small treatise on the breeding, rearing, and management of wild birds in captivity.

1884. The American bird fancier. New ed. rev. and enlarged. *New York.*

BROWNE, *Sir* THOMAS [1605–82].

1650. Pseudodoxia epidemica: or, Enquiries into very many received tenents, and commonly presumed truths. 2nd ed. *4to. pp. (16)+329. table (index).* *London.*

A curious old work by the author of the famous *Religio medici*, divided into four books; the third containing the popular and received tenents concerning animals; that 'a Kingfisher hanged by the bill sheweth where the wind is', that 'a Pigeon hath no gall', and so forth, pp. 85–152. The first edition was published in 1646, and a third in 1658. Marginal notes by a previous owner are found in the present copy. The Osler library has the *editio princeps* (1646) as well as the above printing, and nine other editions in English, Dutch, and French.

1902. Notes and letters on the natural history of Norfolk, more especially on the birds and fishes, from the mss. of Sir Thomas Browne . . . in the Sloane collection in the library of the British museum and in the Bodleian library, Oxford; with notes by Thomas Southwell. *8vo. pp. xxvi+102. front. (letter). T. of c. 4 append. index.* *London.*

References to birds figure throughout the volume, more especially on pp. 1–30, 'Notes on certain birds found in Norfolk', and also in the letters to Merrett, pp. 57–85, as well as in the four appendices, pp. 86–98, and the introductory note by Thomas Southwell, pp. i–xxvi. The frontispiece is a facsimile of a portion of a letter from Sir Thomas Browne to Dr. Merrett showing the difficulty of deciphering his handwriting.

BRUCE, CHARLES.

1924. Twenty Years in Borneo. *8vo.* *Boston.*

BRUCE, WILLIAM SPEIRS [1867–1921].

1907. Life in the Antarctic. (The Scottish National Antarctic expedition.) *24mo. pp. 67. 60 photos.* *London.*

This little book forms vol. 10 of *Gowan's Nature Books*. The first edition was issued in January 1907, the present copy being a reprint of February of the same year.

1923. A naturalist at the poles; the life, work & voyages of Dr. W. S. Bruce. *See* BROWN, R. N. R.

1924. The American edition, identical with the foregoing.

BRUCH, CARL W. L. [1820–84].

[**1853**]. Monographische Uebersicht der Gattung Larus Lin. *8vo. pp. [13].*

Author's excerpt from *Journ. f. Ornith.*, Jahrg. 1, 1853.

BRÜCKNER, PAUL.

[**1913**]. Wie baue ich mir billig Brutapparate, Kückenheime und Fallennester? 4te Aufl. *8vo. pp. 128. 72 text-figs.* *Leipzig.*

Handbook on artificial nests, incubators, and other apparatus for bird culture.

BRUETTE, WILLIAM ARTHUR [1873–].

[**1923**]. Sportsmen's encyclopedia. *8vo. pp. 319. 98 figs. T. of c. 6 indexes.* *New York.*

A compilation useful and necessary to the sportsman, with numerous illustrations, some of which are of game birds and the art of shooting them. *Forest and Stream* publication.

BRUIN, NICHOLAS DE. *Artist-illustrator.*

1594. Volatilium varii generis effigies in tyronum . . . aeri incisa. *8vo. 13 cop. pl. including title. no text.* *Antwerp.*

One of this celebrated engraver's numerous small albums, the present copy containing 'Mancherley vögel, vligen, mucken, und schnecken eigentliche figuren, ausgangen durch A. Londerseel'.

BRUNER, HENRY LANE.

1929. Laboratory directions in college zoology. *8vo. pp. 14+163.* *New York.*

BRUNER, LAWRENCE [1856–].

1896. Some notes on Nebraska birds; a list of the species and subspecies found in the state, with notes on their distribution, food-habits, etc. Corrected to April 22, 1896. [Author's reprint from the Report of the Nebraska State Horticultural Society, 1896.] *8vo. pp. 48–178. 51 figs. append. index.* *Lincoln, Neb.*

The list proper includes brief annotations on distribution and in some cases remarks on the bird's food and its value to the agriculturist. Four hundred and fifteen species and subspecies are recorded.

1904. A preliminary review of the birds of Nebraska, with synopses. *8vo. pp. 116+(10). 9 figs. (diagr.). index.* *Omaha, Neb.*

An annotated list of the species with keys for their determination and for the separation of families and orders. Originally published, with some differences, in the *Annual Report, Nebraska State Board of Agriculture for the Year 1903*, 1904. Walcott, R. H. and Swenk, M. H. collaborated with the author.

BRUNET, JACQUES-CHARLES [1780–1867].

1860–80. Manuel du Libraire et de l'amateur de livres. 6 tomes et 2 suppléments. *8vo.* *Paris.*

The Blacker copy, the *Exemplaire de M. Paul Didot*, is bound in 14 vols. It is a well-known bibliographical work of reference indispensable to all good libraries.

BRÜNN.

1863–*date*. Verhandlungen des Naturforschenden Verein. Bd. 1– . *8vo.* *Brünn.*

BRÜNNICH, MORTEN THRANE [1737–1827].

1764. M. Th. Brünnichii Ornithologia borealis, sistens collectionem avium ex omnibus, Imperio danico subjectis, provinciis insulisqve borealibus Hafniae factam, cum descriptionibus novarum, nominibus incolarum, locis natalium et icone. *8vo. pp. 8+80. 1 pl. (fold.). append.* *Hafniae.*

Ornithology of all the provinces subject to Denmark. The Skua Gull or Brünnich's skua (*Catharacta skua*) is entered in the *Brit. Mus. Cat.* xxv. 315 as *Megalestris catarrhactes* and the Arctic Gull or Richardson's skua (*Catharacta cepphus*) of which there is a plate here, is entered as *Stercorarius crepidatus*, for reasons which are not obvious. The E.S.W. Library copy of this very rare title was presented by Mr. Gregory Mathews.

BRUNSKILL, E.

1920. Canary culture for amateurs. *8vo. pp. xi+115. 45 figs. T. of c.* *London.*

BRUSH HILL BIRD CLUB.

1914. First Report. *See* REPORT OF BRUSH HILL BIRD CLUB. *Milton, Mass.*

BRUSINA, SPIRIDION [1845–].

1906. L'ornitologia della Bulgaria, del Montenegro e della Grecia del Reiser. *4to. pp. 31.* *Siena.*

Author's reprint from *Avicula*, Anno X, N. 101–2, 1906.

BRUSSELS.—Musée Royal d'Histoire Naturelle de Belgique.

1877–87. Annales.

1882–8. Bulletin.

1900–*date*. Mémoires.

BRUSSELS.—Musée du Congo Belge.
1898–*date*. Annales—Zoologie.

BRUSSELS. *See* ACADÉMIE ROYALE DES SCIENCES . . . DE BELGIQUE.

BRUTON, F. A. *See* CORMAC, W. E., 1928.

BRYAN, WILLIAM ALANSON [1875–].
1901. A key to the birds of the Hawaiian group. *folio. pp. iv+5–76. pl. XVI–XXX. 17 figs. in text.* (Bernice Pauahi Bishop museum. Memoirs, vol. 1.) Author's excerpt. *Honolulu.*
Useful identification tables of Hawaiian birds. The photoplates are well made. The volume is supplied with an index, which includes the synonymy of the bird lists.

BRYANT, HENRY.
[**1859**]. A list of birds seen at the Bahamas, from Jan. 20, to May 14, 1859, with descriptions of new or little known species. *8vo. pp. 32.*
An annotated list of about 87 species.

BRYDEN, HENRY ANDERSON [1854–].
1899. Great and small game of Africa; an account of the distribution, habits and natural history of the sporting mammals, with personal hunting experiences. *folio. pp. 20+612. illust. pl. London.*
Appendix and supplement included.

1909. Animals of Africa. 2nd ed. *8vo. pp. xvi+240. front. 11 pl. 28 figs. T. of c. index.* Illust. by E. Caldwell. *London.*
A popular account intended principally for boys. The section relating to birds is Pt. II, pp. 109–66, with three plates and seven figures.

BUCHANAN, ANGUS [1886–].
1920. Wild Life in Canada, etc. *8vo. pp. 20+264. 15 pl. T. of c.* *London.*
This interesting volume relates mainly to the natural history of the Canadian North-west and lists much of the flora and fauna of this somewhat neglected portion of the continent. Birds are considered on pp. 219–64.

1922. Exploration of Air; out of the world north of Nigeria. *8vo. pp. 24+258. pl. map. New York.*

BUCHANAN, HAMILTON FRANCIS [1762–1829].
1822. An account of the Fishes in the river Ganges and its branches. *pp. 7+405. atlas. 39 pl.* *London.*
A useful, though early, systematic description of inland Indian fishes.

BUCHANAN, JOHN.
1793. Travels in the Western Hebrides. *1 vol.* *London.*

BUCHANAN, ROBERT.
1868. The life and adventures of J. J. Audubon. *See* AUDUBON, J. J.

BUCHHEIM, EMMA S.
1908. How to attract and protect wild birds, by M. Hiesemann. *See* HIESEMANN, MARTIN.
1911. [Same title as foregoing.] 2nd ed.
1912. [Same title as foregoing.] 3rd ed.

BUCHHOLZ, REINHOLD WILHELM [1837–76].
1880. Reisen in West-Afrika, nach seinen hinterlassenen Tagebüchern und Briefen nebst einem Lebensabriss des Verstorbenen von Carl Heinersdorff. *8vo. pp. 8+264. illust. map.* *Leipzig.*
Buchholz originally accompanied Dr. Reichenow to West Africa, but on their arrival at the Cameroons the parties separated. Buchholz made a collection of birds many of which were destroyed by rats. His chief concern was with zoological material other than birds, and in this he was very successful.

BUCHNER, L.
1876. Aus dem Geistesleben der Thiere, etc. *8vo. pp. 370.* *Berlin.*
A sympathetic study of the psychology of animals.

BUCHNER, PAUL [1886–].
1926. Tierisches Leuchten und Symbiose. *8vo. pp. 58. illust.* *Berlin.*

BUC'HOZ, PIERRE JOSEPH [1731–1807].
1783. Trésor des laboureurs dans les Oiseaux de la basse-cour, etc. *Paris.*

BUCK, WALTER J. **1893.** *See* CHAPMAN, ABEL.

BUCKLAND, FRANCIS TREVELYAN [1826–80].
1859. Curiosities of natural history. 4th ed. *8vo. pp. (2)+xvi+319. front. 2 pl. T. of c.* *London.*
References to birds are on pp. 136–9, the Heron as an enemy to rats; sagacity of the fowls in Jamaica; Birds and the electric telegraph. The 1st edition was published in 1857, the 2nd, in 1858, with a new series in two vols. in 1866.

1875. *See* WHITE, *Rev.* GILBERT.

1875. Log-book of a fisherman and zoologist. *8vo. pp. xiv+(2)+407. front. 3 pl. 26 figs. T. of c. index.* *London.*
References to birds are scattered throughout the pages of this book; the woodpecker and the bittern, pp. 144–50; use of the gular pouch of the Bustard, pp. 118–22; Golden eagle from Sutherlandshire, pp. 261–70.

1877. *See* AUSTEN, NATHANIEL LAURENCE.

1880. Natural History of British Fishes. *8vo.*

1882. Notes and jottings from animal life. Illust. *8vo. pp. viii+414. front. (portr.). T. of c.* *London.*
The substance of these papers had already appeared in *Land and Water*, and the *Leisure Hour.*

n.d. The Ludgate School-Books The Frank Buckland reader; selected readings from 'Curiosities of natural history'. 73 illust. *12mo. pp. viii+248. front. 72 figs. T. of c.* *London.*
Taken from the author's *Curiosities of Natural History.*

BUCKLAND, WILLIAM [1784–1856].
1823. Relíquiæ diluvianæ; or Observations on the organic remains contained in caves, fissures, and diluvial gravel, and on other geological phenomena, attesting the action of an universal deluge. *4to. pp. vii+303. 27 pl. (2 col., 1 fold.). 1 tab. (fold.). T. of c. index.* *London.*
The caves here referred to are situated in England, Wales, and Germany, the remains of birds found being very small indeed as compared with mammals. The principal references consist of bones found at Kirkdale, p. 15 (chiefly wing bones), birds in the diluvium of England, p. 27, and bones at Paviland and Gibraltar, pp. 93 and 155.

BUCKLEY, THOMAS EDWARD [1846–1902].
[**1887**]. A vertebrate fauna of Sutherland, Caithness and West Cromarty. *See* HARVIE-BROWN, J. A.
1888. A vertebrate fauna of the outer Hebrides. *See* HARVIE-BROWN, J. A.

→ 1880. (Büchner. L) Mind in Animals. Tr. from the German by Annie Besant. Lndn.

← Buchoz, P.J. 1782. Amusemens des Dames dans les Oiseaux de volière. Paris.

← Bryce. J. 1872. Geology of Arran and other Clyde Islands. Illus., maps.

← 1900. Animals of Africa. front., plts.

← Buckley, A. B. 1882 Winners in Life's Race. 12mo. pp. 367, illus. London.

Budan, Emilio. — Il Pappagallino Ondulato. 8vo ~~[illegible]~~
pp. 54. index. Catania. ~~1921~~ 1921. >>

1903 Il Canarino ch 8vo illust: ~~[illegible]~~: pp 192
index Catania: ~~1903~~.

→ Buddle. R. ___ Snakes of Singapore Island. 12mo. ill.
boards. pp. 48. Singapore.

1891. A vertebrate fauna of the Orkney Islands. *4to. pp. xxiv+314. 7 pl. 1 map (col. fold.). 6 figs. T. of c. append. index.* *Edinburgh.*

References to birds in the introduction, pp. xvii–xxiv, in the description of the physical features of the islands, pp. 1–59, as well as in the annotated list of the 223 species accorded to the district. It also included Sutherland and may be regarded as the best of many local faunal publications descriptive of the wild life of northern Scotland.

1892. A vertebrate fauna of Argyll and the inner Hebrides. *See* HARVIE-BROWN, J. A.

1895. A fauna of the Moray Basin. *See* HARVIE-BROWN, J. A.

1899. A vertebrate fauna of the Shetland Islands. *See* EVANS, A. H.

BUCKNILL, JOHN ALEXANDER STRACHEY [1873–].

1900. The birds of Surrey. *8vo. pp. lvi+374. 6 pl. (photogr.). 13 cuts in text. map. T. of c. index.* Extra-illustrated with 20 col. pl. from Lilford's Birds. Bibliography in pref., pp. 15–19. *London.*

A popular and well illustrated brochure on local birds with an account of the distribution, habits, nidification, etc. The extra-illustration of the present copy adds much to its value as a guide to the identity of species.

1902–20. *See* VICTORIA HISTORY OF THE COUNTIES OF ENGLAND.

1927. The birds of Singapore Island. In collaboration with F. N. Chasen. *8vo. pp. vi+247. 31 col. pl. T. of c. 2 indexes.* *Singapore.*

A semi-popular work. The letterpress is arranged under the following headings: (1) Description, (2) Distribution, (3) Status in Singapore, (4) Field Notes, and (5) Other habits.

BUDAPEST. [Fauna of (old) Hungary.]

1900. Fauna Regni Hungariae, etc. *3 vols. 4to.* In Hungarian. (Wanting.) *Budapest.*

This comprehensive and valuable treatise does not deal with all the vertebrates, but as part of the biology of Lake Balaton (50 miles S.W. of Budapest) E. von Daday describes the fishes; L. von Méhelÿ the amphibia and reptiles; A. von Lavassy the birds. There is an introduction to each section in both Hungarian and Latin.

BUDAPEST. Magyar Nemzeti Múzeum.

1903–*date*. Annales Historico-Naturales. *See also* TERMÉSZETRAJZI FÜZETEK.

BUDGETT, JOHN SAMUEL [1872–1904].

1907. The work of John Samuel Budgett, Balfour student of the University of Cambridge: being a collection of his zoological papers, together with a biographical sketch. *pp. x+494. front. (portr.). 28 pl. (partly col.). 173 figs. T. of c. index.* *Cambridge.*

The Budgett Memorial Volume, containing reprints of his various Zoological papers. References to birds will be found in the biographical sketch by A. E. Shipley, pp. 1–55, in the account of the journey to Uganda, pp. 185–92, the principal one, however, being on the ornithology of the Gambia river, pp. 143–53, with an outline map of the Gambia river, fig. No. 13. The list consists of about 110 species.

BUEKERS, P. G.

1903. De vogels van Nederland; lijsten voor het bepalen van alle tot nu toe in Nederland waargenomen vogels. *12mo. pp. 12+164. 4 pl. 1 fig.* *Zutphen.*

A useful list of the various groups of the avifauna inhabiting the Netherlands. Both the Dutch and systematic names (after Schlegel), with a description of each, is furnished, but no figures of the birds are given. An index of both scientific and vernacular names is appended.

BUENOS AIRES. Jardin Zoológico.

1893. Revista.

BUENOS AIRES (City). Museo nacional de historia natural.

1894–7. Memoria (all pub.).

BUENOS AIRES. Sociedad Argentina de Ciencias Naturales. 1918–19. Actas, etc.

BUERGER, OTTO.

1900. Reisen eines Naturforschers im tropischen Südamerika. *8vo. pp. 6+395. 16 pl. illust. in text.* *Leipzig.*

The writer is a well-known naturalist whose observations are generally accurate and worth the readers attention. He is, for instance, one of the contributors to the *Fauna Arctica* of Roemer and Schaudinn, though not on a vertebrate zoologic subject.

BUFFALO SOCIETY OF NATURAL SCIENCES.

1873–*date*. Bulletin.

1920–*date*. Hobbies.

1928–*date*. Annual Report.

BUFFON, G. L. L. DE [1707–88] and **others.**

1749–1804. Histoire Naturelle . . . avec la description du Cabinet du Roi. *44 vols. 4to. illust.* *Paris.*

This, the first and most complete work of the famous naturalist, was completed after more than 50 years toil, with the aid of other celebrated zoologists, L. J. M. Daubenton, P. Guéneau de Montbeillard, G. L. C. A. Bexon, and Count de Lacépède. The combined treatises discuss the whole range of the animal, vegetable, and mineral kingdoms and form a veritable mine of information not only much utilized by subsequent investigators but separately published more or less in variant editions by the writers themselves.

1766–99. Histoire naturelle, générale et particulière avec la description du cabinet du roi par [G. L. L.] de Buffon & [L. J. M.] Daubenton. Nouvelle éd. *36 vols. in 19. 4to. pl. maps.* *Amsterdam.*

CONTENTS. 1–15. Quadrupèdes. [16–24]. Oiseaux. [25–9]. Minéraux. [30–6]. Supplément.

Vols. [16–29] & [36] pub. Dordrecht, A. Blussé & fils.

One of the earlier but very important editions of a fundamental and famous treatise on natural history. The Blacker Library copy has the 22 vols. on mammals bound as 15; on birds, 9 vols. as 5.

1770–86. Histoire Naturelle des Oiseaux. *10 vols.*

The avifauna of the *Histoire naturelle.*

1771–4. Allgemeine Naturgeschichte. *7 vols.*

1771–86. Histoire naturelle des oiseaux. *10 vols. folio. col. illust.* *Paris.*

This is a large paper issue of a portion of the text of the original edition with the *Planches enluminées*, engraved by Martinet under the supervision of E. L. Daubenton, with the collaboration of P. G. de B. Montbeillard. One of the most extensive, important, and early works on ornithology. It is really a second edition of Buffon's nine volumes on birds in the first edition of his *Histoire Naturelle Générale.* The avian species are mostly described under their vernacular names but are easily identified by the discussion of their physical characters, habits, etc. Zimmer (*Cat. Ayer Library*, p. 105) gives a complete account of this remarkable work, a portion of which I quote as follows: 'Buffon, in 1749, began the publication of his *Histoire Naturelle Générale* (q.v.), completed in 1804 (after his death), in 44 quarto volumes. Of these, the nine volumes of birds (vols. 23–31) appeared from 1770 to 1783. A separate edition of the same work in 71 volumes, 12mo, was begun in 1752 and completed in 1805, of which the ornithology occupied 18 volumes (vols. 47–64). In 1765 Daubenton the younger (whose father was collaborator with Buffon in the *Hist. Nat. Générale*), instigated by Buffon, commenced the publication of a series of 1,008 colored plates, 973 of which are of birds, drawn by Martinet. These were

[**BUFFON**, G. L. L. DE and **others** (*contd.*)]

issued without text other than the vernacular names (often from Brisson) on their legends. They appeared in promiscuous order in 42 "cahiers", from 1765 to 1780 or a little later in both large and small folio, and appear to lack any definite title or title-page, although the collection seems always to have been known as "Daubenton's Planches Enluminées".

'Daubenton's work seems to have been intended originally to illustrate the volumes of *Oiseaux* of Buffon's *Hist. Nat. Générale*, even though the latter did not commence until the plates were in course of publication. Buffon (*Hist. Nat. des Oiseaux*, i, pp. vj–ix and vii, p. ij) and Boddaert (Table, p. viii) both credit the enterprise with that definite purpose. However, in view of the limited edition of the colored plates—insufficient to provide a set for each copy of the *Hist. Nat. Générale*—a new set of 262 black-and-white plates was prepared for the ornithological volumes of that work (cf. Buffon, *Hist. Nat. des Oiseaux*, i, p. ix). At the same time Buffon produced, in ten volumes, a special edition of the ornithology (in both large and small folio) under the title transcribed above, designed expressly to accompany Daubenton's plates. Each volume contains a list of these plates with the order of arrangement and references to the pages where they are to be inserted in the volume, and the text refers to them simply as "les planches enluminées, No. ". No reference is made in the text to 35 non-ornithological plates which accompany the present set (and other recorded sets) of the work, except as they are included in the total number of plates mentioned in vol. vii, p. ij.'

1772–1809. Herrn von Buffons Naturgeschichte der Vögel. Aus dem Französischen übersetzt, mit Anmerkungungen, Zusätzen, und vielen Kupfern vermehrt, durch Friedrich Heinrich Wilhelm Martini. *35 vols. 8vo.* Vol. I, *pp. 4+276. About 300 pp. in each of the other vols. T. of c. in each vol. col. fronts. 1,575 col. pl.* *Berlin.*

One of the most valuable of the many editions of this remarkable work. It is impossible to overrate Buffon's early and important contributions to the science of ornithology. The illustrations in the present edition are drawn from several sources, but most of them are prints from the plates of the original French treatise. For a complete appreciation of Buffon's *Oiseaux* the annotator refers the student to Zimmer's *Catalogue of the Ayer Library*, Field Museum, Chicago, p. 104 et seq.

1774. Histoire naturelle générale et particulière. Œuvres complètes. *49 vols. 8vo.* *Paris.*

1778–1864. Œuvres complètes. *6 vols. col. pl.* *Paris.*

1780. Les Époques de la Nature. *2 vols.* *Paris.*

1785–91. Histoire naturelle, générale et particulière. Tomes 1–13. Oiseaux, 1–14. Quadrupèdes, 1–14. Minéraux, 1–9. *12mo.* [O.] *Deux-Ponts.*

A complete set of this important edition is also in the E.S.W. Library. There are in the latter altogether 54 volumes, the volumes devoted to birds being bound as 17.

1791. The History of Singing Birds, etc. Trans. *8vo.* *Edinburgh.*

1791. The System of Natural History, etc. *2 vols.* (*in 1*). *8vo.* *Perth.*

[**1792**]. Buffon's natural history abridged. A new ed. *2 vols. 8vo.* Vol. I, *pp. xxxvii+353. front. 40 pl. T. of c.* Vol. II, *pp. (2)+494. 67 pl. glossary. index.* *London.*

A popular abridgement of Buffon's more expensive and bulky works, the portion pertaining to the birds being found in vol. ii, pp. 1–149, with 114 illustrations, pl. nos. 41–75.

1792–3. Natural history of birds; tr. from the Fr. [by William Smellie]. *9 vols. 8vo. 262 uncol. pl. Index to the whole work end of ninth vol.* *London.*

One of the numerous English translations of the famous *Histoire Naturelle* as given by the sub-title: 'Illustrated with engravings; and a preface, notes, and additions [appendix] by the translator'.
1792. Vol. I, *pp. 412. pl. 1–29.*
1793. Vol. II, *pp. 496. pl. 30–56. T. of c.*
1792. Vol. III, *pp. 456. pl. 57–87. T. of c.*
1793. Vol. IV, *pp. 481. pl. 88–114. T. of c.*
1793. Vol. V. *pp. 536. pl. 115–36. T. of c.*
1793. Vol. VI, *pp. 585. pl. 137–61. T. of c.*
1793. Vol. VII, *pp. 530. pl. 162–92. T. of c.*
1793. Vol. VIII, *pp. 448. pl. 193–231. T. of c.*
1793. Vol. IX, *pp. 504. pl. 232–62. index.*
According to the title-page dates these volumes were irregularly issued. The book-making of the edition is excellent.

1793. Buffon's Natural History (Barr). *15 vols. 8vo.*

Another of the many printings, English and other, of Buffon's famous work.

1799–1805. (An. VII–XIII.) Histoire Naturelle . . . nouvelle édition, accompagnée de Notes . . . par C. S. Sonnini. *64 vols. 8vo. col. ill.* (Suites.)

This well-known edition is divided into two parts, the first (64 vols.) the original work enlarged and edited by Sonnini, P. A. Latreille, and F. M. Daudin, and a collection of appendices—the first collection of the so-called 'Suites à Buffon'—mainly on Cetacea, Reptilia, Pisces, Mollusca—by these authors with the additional aid of Lacépède, Denys-Montfort, Brisseau-Mirbel, Jolyclerc, and P. Sue.

1799–1808. Histoire naturelle, générale et particulière. Nouvelle éd., accompagnée de notes . . . rédigée par C. S. Sonnini. *127 vols. 8vo. pl.* *Paris.*

A variant—especially in binding and title-pages—of the Sonnini edition of 1799–1805.

1814. The system of natural history, carefully abridged. Engr. on wood. *4 vols. 16mo.* Vol. I, *pp. iv+iii–vi+9–336. 63 figs. T. of c.* Vol. II, *pp. iv+9–324. 112 figs. T. of c.* Vol. III, *pp. iv+9–332. 117 figs. T. of c.* Vol. IV, *pp. iv+9–308. 28 figs. T. of c. index.* *Alnwick.*

Another popular abridgement of Buffon's more expensive and bulky work, the portion on birds in vol. ii, pp. 219–324, with 49 illustrations, and vol. iii, pp. 9–92, with 53 illustrations.

1819. Œuvres Complètes; mises en Ordre par le Comte de Lacépède. 2nd ed. *25 vols.* Bound with Histoire Nat. des Quadrupèdes-ovipares et poissons par le Comte de Lacépède suite et complément de Buffon, 5 vols.; in all 30 vols. *Paris.*

1828–33. Œuvres complètes de Buffon, suivies de ses continuateurs Daubenton, Lacépède, Cuvier, Duméril, Poiret, Lesson et Geoffroy-St.-Hilaire. Seule éd. complète. *20 vols. 8vo. pl. maps.* *Bruxelles.*

CONTENTS. Vols. 1–4. Théorie de la terre. 5. Histoire naturelle de l'homme. 6–10. Mammifères. 11–14. Oiseaux. 15–20. Planches.

An important and well-known edition of the great treatise of Buffon, issued at Brussels by Lejeune. The contributors to this work included the most celebrated naturalists in France.

1834–74. (Collection des) Suites à Buffon, formant avec les œuvres de cet auteur un cours complet d'Histoire Naturelle. *8vo. pl.* *Paris.*

The 82 vols. in the McGill Library contain everything from these well-known addenda to the original treatise of Buffon that concerns vertebrate zoology and much that does not concern that subject. Among the famous collaborators were H. Milne Edwards, R. P. Lesson, Geoffroy Saint-Hilaire, G. F. Cuvier, G. Bibron, L. Vaillant, and many others. Nearly all the *Suites* have been separately published. See *Cat. Br. Mus.* (*Nat. Hist.*), i, p. 283.

1836–70. Suites à Buffon, Cours complet d'Histoire Naturelle.
Cétacés. Par F. Cuvier. (1836.) 1 vol.
Reptiles. Par Duméril et Birron. (1834–41.) 9 vols.
Poissons. Par A. A. Duméril. (1865–70.) 2 vols.

1837–40. Sämmtliche Werke. (Vierfüsse Thiere, 2 vols.; Vögel, 3 vols.; Allgemeine Gegenstände, 4 vols.) Pl. Köln, 9 vols.

Probably a rare German edition.

1841. The book of birds: edited and abridged from the text of Buffon by M. Achille Comte. Illustrated by one hundred and fifty designs, by

1831. Buffon's natural history, ed. by J. Wright. 4 vols.

1856. Buffon's Natural History. 4pts. 200 engravings. Halifax. 12mo pp. 509

+ 1860. Small 8vo. Buffon's Nat. Hist. 300 engrav. Halifax. Pp 224

n.d. Edited by Achille Comte. pp. 312 (38) pl. col. ill by Victor Adam (new)

[1841?] "Keepsake d'Histoire Naturelle" rare + one of the numberless!

-Description des Oiseaux-

Lamb

Victor Adam. Tr. from the original by Benjamin Clarke. *8vo. pp. 34+292. 38 col. pl.* *London.*

One of the many English translations and adaptions of Buffon's celebrated *Histoire Naturelle.*

1852. Histoire naturelle; rev. réduite et précédée d'introd. par Achille Comte et Charles d'Orbigny. Oiseaux. *8vo. pp. 24+312. front. portr. of author. T. of c. index.* *Paris.*

This rare edition, not catalogued by the Br. Mus. Nat. Hist., or the Zoological Soc., is illustrated by 150 hand-colored figures (plates) by Victor Adam. The colored illustrations are irregularly numbered and distributed throughout the work, but a paged table indicates their whereabouts. This work (probably based on the English edition of 1841) may be regarded as an amended printing with further observations by the two editors, Comte and D'Orbigny.

1853–7. Œuvres complètes avec la nomenclature Linnéene et la classification de Cuvier; rev. sur l'édition in 4 de l'Imprimerie Royale et annotées par M. [J. P.] Flourens. *12 vols. 4to. pl. maps.* Oiseaux: Vol. V, *pp. 597. col. front.* Vol. VI, *pp. 586. col. front.* Vol. VII, *pp. 624. col. front.* Vol. VIII, *pp. viii. col. front.* *Paris.*

CONTENTS. Vol. 1. Théorie de la terre—Histoire générale des animaux. 2. L'homme—Les quadrupèdes. 3. Les quadrupèdes. 4. Les singes—Additions aux quadrupèdes. 5–8. Oiseaux. 9–11. Minéraux. 12. Expériences sur les végétaux, arithmétique morale et Tables analytiques et raisonnées des matières contenues dans l'ouvrage entier. Pref. date Oct. 1, 1855.

The title-page truthfully states this to be a new edition illustrated by 150 steel engravings after drawings by Traviès and Henry Gobin and colored with the greatest care. It is one of the best editions of the master placed upon the market, albeit among the rarest.

n.d. Œuvres complètes. Ed. by M. A. Richard. *5 vols. pl.* *Paris.*

******** and **others.**

n.d. Raccolta di 125 tavole di Uccelli relative alla Storia Naturale del Buffon . . . et al. *1 vol.*

A rather rare Italian edition of Buffon's *Birds.*

BUHLE, CHRISTIAN ADOLPH.

1818–28. Die Eier der Vögel Deutschlands und der benachbarten Länder, &c. *See* NAUMANN, J. F.

1835. Die Naturgeschichte in getreuen Abbildungen. Vögel. *184 col. pl.* *Leipzig.*

1842–5. Naturgeschichte der domesticirten Vögel in ökonomischer und technischer Hinsicht; ein Hand- und Hülfsbuch für Jedermann besonders für Stadt- und Landwirthe. *6 vols. in 1. 8vo. pp. (12)+498. 6 front. (col.). index.* *Halle.*

Technical handbook on domesticated birds; swan, goose, duck, peafowl, turkey, guinea-fowl, common fowl, pigeon, and cage-birds.

1880. Die Vögel von Mittel-Europa und ihre Eier. *See* GRÄSSNER, FÜRCHTEGOTT.

BÜHLER, *Capt.* and **SARWEY,** *Genl.*

1890. Von den Vögeln zum Balkan. *2 vols. 8vo. illust.* Vol. 1, von Bühler; vol. 2, von Sarwey. *Magdeburg.*

BUIST, K. A.

1874. Birds: their Cages and their Keep. *12mo.* *London.*

BULL, HENRY GRAVES [1828–85].

1888. Notes on the birds of Herefordshire, contributed by members of the Woolhope Club. *8vo. pp. xxii+274. portr. T. of c. index.* Extra illustrated by 14 col. pl., by Keulemans, Thorburn, and Lodge. *London.*

A well written, accurate, popular description of the local birds.

BULLER, *Sir* WALTER LAWRY [1838–1906].

[1867]. Versuch über die Ornitologie Neu-Seelands, übersetzt und mit kritischen Anmerkungen versehen von Otto Finsch. *8vo. pp. 385–92+305–47. n.p.*

These notes (in reply to Finsch's criticisms, pp. 385–92) are dated June 10, 1868. In Dr. Finsch's annotated translation, several of Buller's new species are criticized.

[1869]. Notes on the ornithology of New Zealand. *8vo. pp. 385–92.* *London.*

A reply to the criticism by Dr. O. Finsch of the author's paper in the *Ibis* for January 1869, describing new species of birds from New Zealand. Copies of Dr. Finsch's paper, as well as the author's original article (from the *Ibis*) which evoked it, are appended.

1872–3. A history of the birds of New Zealand. 1st ed. *4to. pp. 24+384. 36 (35 col.) pl. 1 fig in text. T. of c. index.* *London.*

This well-known treatise was issued in five parts, and gives both the native and systematic names of the Island birds. Many of the original drawings for the colored lithographed plates, with Buller's marginal corrections and other notes, are in the Emma Shearer Wood Library, and are fine examples of Keulemans' work. The habits and other characteristics of 145 species are furnished. Only 500 copies of the work were issued. The dates of publication of each part will be found in Mathews' *Birds of Australia*, vol. 7, p. 447. The copy in hand has inserts of numerous clippings relating to the career of Sir Walter Buller.

1882. Manual of the birds of New Zealand. *4to. pp. 12+107. 37 pl. front. generic. T. of c. index.* (New Zealand, Colonial museum and geological survey Dept.) *Wellington.*

This list is an enlarged *Catalogue of the Birds of New Zealand* by F. W. Hutton, published in 1871. It describes 176 species and the plates are mostly reduced copies of illustrations from Keulemans' admirable drawings that adorn Buller's *History of the Birds of New Zealand.*

1887–8. A history of the birds of New Zealand. 2nd ed. *2 vols. folio. 36 pl. (35 col.). T. of c. index.* *London.*

A second edition of this famous work. It was issued by subscription and in 13 parts, and appears as a decidedly enlarged issue of the first edition printed in 1872. Moreover, the plates have been remade, giving clear impressions of the original drawings by Keulemans. Mathews (*Birds of Australia*, vii, p. 447) gives the contents and dates of issue of each number. A supplement (q.v.) in two volumes was published in 1905–6. Present copy is from the Godman library.

1888. A classified list of S. W. Silver's collection of New Zealand birds [at the Manor-House, Letcombe Regis] with short descriptive notes. *pp. 86. illust. index.* *London.*

An appraisal of a valuable collection of New Zealand birds, with short notes regarding the habits and distribution of each. There are many cuts in the text.

1890. Reviews and other notices of Sir Walter Buller's Birds of New Zealand. *8vo. pp. 64. 2 cuts.* *London.*

Printed 'for private circulation only'.

1895. Illustrations of Darwinism, etc. *8vo.* *Wellington.*

1905–6. Supplement to the Birds of New Zealand. *2 vols. folio. T. of c. index.* Vol. I, *pp. lx+200. front. portr. 5 col. pl. 32 text-figs.* Vol. II, *pp. 2+178. 12 col. pl. 14 text-figs. index to both vols.* *London.*

These supplementary volumes follow the high standard displayed in the original work, and much matter touching subjects already discussed in the author's *History* as well as a description of new species is duly set forth and depicted. The copy in hand is from the Godman library. Several of the original Keulemans 'patterns' for this work are in the E.S.W. Library.

BULLETIN OF THE AMERICAN ORNITHOLOGISTS' UNION. *See* AMERICAN ORNITHOLOGISTS' UNION—COMMITTEE ON PROTECTION OF BIRDS, BULLETIN.

BULLETIN DE L'ASSOCIATION DES NATURALISTES DE LA VALLÉE DU LOING.
1913–27. Année I–X. *Troyes.*

BULLETIN OF THE AUDUBON SOCIETY OF NEW HAMPSHIRE. *See* AUDUBON SOCIETY OF NEW HAMPSHIRE, BULLETIN.

BULLETIN OF THE AUDUBON SOCIETY OF THE WESTERN PACIFIC. *See* AUDUBON SOCIETY OF THE WESTERN PACIFIC, BULLETIN.

BULLETIN (SPECIAL) OF BAYLOR UNIVERSITY MUSEUM.
1927. No. 1. Waco. Notes on the Ornithology of McLellan Co. *Waco, Texas.*

BULLETIN BIOLOGIQUE DE LA FRANCE ET DE LA BELGIQUE. **1869**–*date.* *Paris.*

BULLETIN OF THE BIRD CLUB OF PRINCETON UNIVERSITY. Edited for the Club by W. E. D. Scott, Princeton University, N.J. *8vo.* Vol. 1, no. 1, Sept. 1901. *pp. 82.*

The first number (probably all issued) contains a list of the Officers and Club Membership with a paper on the Birds of Princeton, N.J., by the President of the Club, William A. Babson. The announcement is made that 'the Club will issue further Bulletins at such intervals as the accumulation or importance of original matter may warrant'.

BULLETIN OF THE BREWSTER ORNITHOLOGICAL CLUB. *Worcester, Mass.*
1899. Bull. No. 1. *pp. 3.*

BULLETIN OF THE BRISTOL COUNTY ORNITHOLOGICAL CLUB. A quarterly magazine of Ornithology. 1887 (?).

This journal was advertised on a cover of the *Ornithologist and Oologist* for April 1887, to be issued May 1, 1887. Subscriptions to be sent to F. W. Andres, Taunton, Mass. However, the first number, thus advertised, was probably never issued, as on July 1, 1887, the *Ornithologist and Oologist* (q.v.) became the property as well as the official organ of the Club, subscriptions to the (proposed) Bulletin being credited on account of the former journal.

BULLETIN OF THE BRITISH OOLOGICAL ASSOCIATION. **1923**–*date.* *See* BRITISH OOLOGICAL ASSOCIATION.

BULLETIN OF THE BRITISH ORNITHOLOGISTS' CLUB. Monthly. *12mo.* Vol. I edited by R. Bowdler Sharpe. Published by R. H. Porter. *London.*
1892–*date.* Migration reports were issued every two years, 13 of the 42 being thus devoted to the study of migration of British birds.

The British Ornithologists' Club was founded in 1892 mainly for the purpose of facilitating the social intercourse of members of the B.O.U. The Bulletin is accordingly largely a record of the agenda of meetings (dinners) at which members and visitors examine and discuss exhibited specimens, and listen to short papers, often illustrated by lantern slides. As part of these activities it was decided to issue (beginning with 1907) a biennial report on the migration of British birds as observed by members, and at various Lighthouses and Light-ships. This valuable serial was interrupted by the War. The membership of the Club is practically that of the B.O.U. and the list of contributors to the Bulletin are largely writers for *Ibis.*

BULLETIN OF THE BUFFALO SOCIETY OF NATURAL SCIENCES. **1873**–*date.*

BULLETIN OF THE CHARLESTON MUSEUM, CHARLESTON, S.C. **1905–22.**

BULLETIN OF THE COLORADO STATE HISTORICAL AND NATURAL HISTORY SOCIETY. **1923**–*date.* *See* COLORADO MAGAZINE.

BULLETIN DU COMITÉ ORNITHOLOGIQUE INTERNATIONAL. *See* ORNIS.

BULLETIN OF THE COOPER ORNITHOLOGICAL CLUB OF CALIFORNIA. A Bimonthly magazine of Pacific Coast Ornithology.
1899. Vol. I. *pp. 120. index. illust.* Continued as The Condor (q.v.).

BULLETIN OF THE ESSEX COUNTY ORNITHOLOGICAL CLUB. Annual.

Vol. 1, No. 1, Dec. 1, 1919, 55 pp., was edited at Salem, Mass., by Ralph Lawson, Secy. of the Club. The first number was reviewed in the *Auk* and very properly described as 'a club periodical of the more serious type'. No. 2 (1920) and No. 3 (1921) contain articles by C. W. Townsend, Glover M. Allen, John C. Phillips, and Messrs. Edward H. Furbush, Winthrop Packard, and other well-known writers who sustain the impression of superiority made by the initial number.

BULLETIN OF THE FLORIDA AUDUBON SOCIETY, WINTER PARK. **1919**–*date.* *See* FLORIDA AUDUBON SOCIETY.

BULLETIN D'HISTOIRE NATURELLE DE FRANCE. **1833–5.** *See also* SOCIÉTÉ DES SCIENCES NATURELLES DE FRANCE. *Paris.*

BULLETIN D'HISTOIRE NATURELLE DE LA SOCIÉTÉ LINÉENNE DE BORDEAUX.
1830, 1845, 1829 (1860). *See* BORDEAUX.

BULLETIN OF THE ILLINOIS AUDUBON SOCIETY. *See* AUDUBON BULLETIN.

BULLETIN OF THE INTERNATIONAL COMMITTEE FOR BIRD PRESERVATION.
1921–*date.* Bull. No. 2 is dated 1929. *8vo. pp. 4+ 51.* Chairman, T. Gilbert Pearson. *New York.*

BULLETIN DE LA LIGUE FRANÇAISE POUR LA PROTECTION DES OISEAUX. *Paris.*

A reference to this periodical occurs in *Le Gerfaut,* Fasc. 1, 1919.

BULLETIN OF THE LIVERPOOL MUSEUMS.
1898–1901. Vols. 1, 2, 3 (pt. 1 and 2). *col. pl.* *See also* LIVERPOOL.

BULLETIN OF THE MASSACHUSETTS AUDUBON SOCIETY FOR THE PROTECTION OF BIRDS. *8vo.* Issued monthly by the Massachusetts Audubon Society, Inc. Boston. Nine numbers annually. Vols. I–VI.
1917–*date.* Current. Vol. I. Feb. 1917–Jan. 1918. 9 nos. Vol. II. Feb. 1918–Jan. 1919. 9 nos. Vol. III. Feb. 1919–Jan. 1920. 9 nos. Vol. IV. Feb. 1920–Jan. 1921. 9 nos. Vol. V. Feb. 1921–Jan. 1922. 9 nos. Vol. VI. Feb. 1922–.

The following notes regarding this Bulletin have been kindly furnished by Mr. Winthrop Packard, the Secy.-Treasurer of the Society: 'There have been printed six volumes, the first having

been published in February 1917. The Bulletin has appeared monthly, with the exception of July, August, and September, and there are approximately 100 pages to each volume, each number containing 8–12 pages. The periodical is edited by Winthrop Packard and Francis H. Allen, Chairman of the Board of Directors. The contributors are mainly members of our Society, who send in interesting and novel items, and we also occasionally reprint matter from other magazines.'

BULLETIN OF THE MICHIGAN ORNITHOLOGICAL CLUB. Published in the interests of Ornithology in Michigan. Edited by L. Whitney Watkins, and several assistants. *8vo.* Quarterly. *tinted wrappers. illust.* Published in Grand Rapids, Mich.; later in Detroit, Mich.
1897–1905. (All issued.)

This club organ belongs to the serious class of ornithological journals and during its career played a useful role in mid-western American bird literature. On its editorial staff it had such well-known ornithologists as W. B. Barrows, Whitney Watkins, T. L. Hankinson, P. A. Taverner (now in the service of the Canadian Government), Norman Wood, and many other Michigan ornithologists, who maintained until its suspension the early scientific reputation of the periodical.

BULLETIN DU MUSÉE ROYAL D'HISTOIRE NATURELLE DE BELGIQUE.
1882–8. Vols. 1–5.

BULLETIN OF THE MUSEUM OF COMPARATIVE ZOOLOGY, AT HARVARD COLLEGE IN CAMBRIDGE.
1863–*date.* Vols. I–LXIX. *4to.*

One of the most important (if not *the* most important) periodicals devoted to the study of comparative zoology anywhere published.

BULLETIN DU NATURALISTE. *Paris.*
1879–80. (Supplement to Guide du Naturaliste.)

BULLETIN OF THE NEW HAVEN BIRD CLUB. Edited and published by the Club.
No. 1 was dated May 1908. *8vo. pp. 32.* (All pub.) *pictured tinted cover.*

The first number contains a list of the birds of the New Haven region.

BULLETIN OF THE NEW ZEALAND NATIVE BIRD PROTECTION SOCIETY. Issued by the N.Z. Native Bird Protection Society, Wellington, N.Z.
(**1918**)–**1924.** Bulletins 1–6.

This organ of a society that is active and influential in the Dominion contains a number of interesting articles on bird life in New Zealand as well as appeals to the citizens to prevent as far as possible the extinction of several species that are in danger of extermination. In Bulletin No. 6 is a short paper on the dangers of acclimatization by Mr. J. G. Myers, a form of experiment that has been performed many times too often in New Zealand.

BULLETIN OF THE NORTHEASTERN BIRD-BANDING ASSOCIATION.
1922–*date.* Vols. I–V. *Boston, Mass.*

BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB. A quarterly Journal of Ornithology. Editor, J. A. Allen.
1875–83. Vols. 1–8. *4to.* Thereafter continued as the Auk (q.v.).

BULLETIN OF THE OOLOGISTS' ASSOCIATION. *Omaha.*
1897. Vol. 1 (all pub.). (Wanting.)

Not seen by Compiler.

BULLETIN OF THE PEKING SOCIETY OF NATURAL HISTORY.
1926–9. Vols. I–III.

BULLETIN OF THE PHILIPPINE MUSEUM.
1903–4. Nos. 1–4.

BULLETIN OF THE RIDGWAY ORNITHOLOGICAL CLUB. *Chicago.*
1883–7. *8vo.*

Several important items appeared in this short-lived periodical.

BULLETIN OF THE ROYAL AUSTRALASIAN ORNITHOLOGICAL UNION.
1914. No. 4, April 16.

A passing reference to the above-mentioned number is all of this periodical that is known to the Compiler.

BULLETIN DES SCIENCES NATURELLES ET DE GÉOLOGIE. Pub. sous la direction de Baron de Ferussac.
1824–31. *27 vols. 8vo.* Deuxième Section du Bulletin Universel des Sciences et de l'Industrie, which contains the Natural History.

This is one of the most important of the early zoological journals. It contains many descriptions of new species. Complete copies are very rare.

BULLETIN SCIENTIFIQUE DU DÉPARTEMENT DU NORD ET DES PAYS VOISINS.
See BULLETIN BIOLOGIQUE DE LA FRANCE ET DE LA BELGIQUE.

BULLETIN SERIES OF THE SOUTH AFRICAN ORNITHOLOGISTS' UNION.
See POPULAR BULLETINS; *also* JOURNAL OF THE SOUTH AFRICAN ORNITH. UNION.

BULLETIN DE LA SOCIÉTÉ D'AVICULTURE.
Montpellier, Herault. (Ref. in journal list *Intern. Cat. of Scient. Publications.*)

BULLETIN DE LA SOCIÉTÉ DES SCIENCES NATURELLES DE MAROC.
1921–8. Pts. 1–8.

BULLETIN DE LA SOCIÉTÉ DES SCIENCES NATURELLES DE NEUCHÂTEL. (**Soc. neuchâteloise,** etc.) **1845**–*date.*
See also NEUCHÂTEL.

BULLETIN DE LA SOCIÉTÉ D'ÉTUDE DES SCIENCES NATURELLES DE NIMES.
1897–1925. 19 vols. *See also* NIMES.

BULLETIN DE LA SOCIÉTÉ D'HISTOIRE NATURELLE D'AUVERGNE. **1922**–*date.*
See also AUVERGNE.

BULLETIN DE LA SOCIÉTÉ D'HISTOIRE NATURELLE DE COLMAR.
1860–88. 1–29. **1883–5.** Supplement. *See* COLMAR.

BULLETIN DE LA SOCIÉTÉ FRIBOURGEOISE DES SCIENCES NATURELLES.
1879–*date.* *See* FRIBOURG.

BULLETIN DE LA SOCIÉTÉ IMPÉRIALE DES NATURALISTES DE MOSCOU.
1829–86. Années.

BULLETIN DE LA SOCIÉTÉ ORNITHOLOGIQUE SUISSE.
1865–70(**1**). Tomes 1 and 2 (all issued). *4to.*
Tome Premier. 1re Partie. 1865. *pp. 154. col. pl.*
2me Partie. 1866. *pp. 154. col. pl. illust. index.*
Tome Second. 1re Partie. *pp. 86. col. pl. index.*
2me Partie. 1870–[1871]. *pp. 167. col. pl. illust.*
(All issued.) *Geneva, Bâle, and Paris.*

These two volumes form the parts issued of this organ of the *Soc. Ornith. Suisse* (founded in 1863). Although the periodical had a short life it was, nevertheless, one of the pioneer magazines devoted to bird preservation and propagation. It was well illustrated and contained several papers of considerable scientific merit. In the list of contributors of papers one notices the names of Fatio, Saratz, Stauffer, Lunel, Stölker, Brehm, Roget, Beaumont, Girtanner, Humbert, Depierre, and A. Newton.

BULLETIN DE LA SOCIÉTÉ ZOOLOGIQUE DE FRANCE.
1876–83. *8 vols.*

BULLETINS OF AMERICAN PALEONTOLOGY. **1895**–*date.* *Ithaca.*

BULLETINS OF BROOKVILLE SOCIETY OF NATURAL HISTORY.
1885–6. Nos. 1 and 2. *Richmond, Ind.*

BULLETIN STATISTIQUE DES PÊCHES MARITIMES. **1910–28.** *Copenhagen.*

BULLETIN U.S. DEPT. OF AGRICULTURE. *See* UNITED STATES.

BULLETIN UNIVERSEL DES SCIENCES ET DE L'INDUSTRIE.
1824–31. Section 2. (Bulletin des Sciences Naturelles et de géologie.)

BULLETIN OF THE VERMONT BIRD CLUB. *Mrs.* NELLIE F. FLYNN, *editor.*
1906–14. Nos. 1–8. The first five numbers were edited by a Publication Committee.

In 1915 this *Bulletin* was merged with the *Joint Bulletin of the Vermont Botanical and Bird Club (q.v.).*
An excellent little periodical devoted mainly to local ornithology.

BULLETIN OF THE VERMONT BOTANICAL AND BIRD CLUB, JOINT. Comprising the Bulletin of the Vermont Botanical Club and Bulletin of the Vermont Bird Club, Burlington, Vt., Free Press Printing Co. Tinted covers. Current. Each number headed (on cover) 'Joint bulletin No. '.
1915–*date.*

The ornithological part of this combined magazine presents the character of the *Bulletin of the Vermont Bird Club* of which it is the successor.

BULLETIN NUMBER [ ] OF THE WILSON ORNITHOLOGICAL CHAPTER OF THE AGASSIZ ASSOCIATION. Edited by Lynds Jones. *8vo. Oberlin, Ohio.* *See* continuation of the WILSON ORNITHOLOGICAL CHAPTER.
1895–8. Ornithologists' and Oologists' Semi-Annual, continued as The Wilson Bulletin (q.v.).

BULLETIN ZOOLOGICAL SOCIETY OF EGYPT.
1927–8. No. 1 (all pub.). pp. 26 in English and 14 in Turkish. *8vo.* *Cairo.*

Articles mostly by native naturalists.

BULLETIN ZOOLOGIQUE. **1835.** *Paris.*

BULLETTINO MENSILE, etc. **Catania Accademia gioenia di scienze naturali.** **1888**–*date.* *See* CATANIA.

BULLIARD, PIERRE [1742–93].
1808. Aviceptologie Française; ou, Traité général de toutes les ruses dont on peut se servir pour prendre les oiseaux. 5th ed. *pp. 24+312. pl.* *Paris.*

A treatise by an expert *Oiseleur* on the methods employed in trapping birds.

BULLING, C.
1922. Paintings of the birds of Fiji. *See* ORIGINAL DRAWINGS, BELCHER, W. J. and **others.**

BULLOCK, WILLIAM [*fl.* 1827].
1812. A companion to Mr. Bullock's London museum and Pantherion. 12th ed. *2 vols. 8vo. pl.* *London.*

Many of the 15,000 'natural objects' were stuffed animals.

1817. A concise and easy method of preserving subjects of natural history, intended for the use of sportsmen, travellers, etc. *16mo. pp. 36. front. 1 pl.* *London.*

In this tractate the preservation is treated on pp. 5–11, and 26–30, with two figures.

BUMPUS, H. C. *See* KINGSLEY, J. S., *ed.*, 1885.

BUND FÜR VOGELSCHUTZ-ABTEILUNG BERLIN.
1914. Vogelschutzkalender. *8vo. pp. 178. 3 pl. (2 col.). index.* *Berlin.*

A report of a local society for the care and protection of birds, with a number of useful articles by members. From the Cabanis-Reichenow collection.

BUNGARTZ, JEAN.
[**1888**]. Modell-Brieftauben-Album. Aquarellen; mit einem Vorwort von J. Horter, pts. 1–6. *folio. 10 col. pl. T. of c.* *Leipzig.*

A popular account of local carrier pigeons, with ten full-page, colored portraits of famous individuals.

BUONANNI, FILIPPO [1638–1725].
1681. Ricreatione dell' occhio e della mente nell' osseruation' della chiocciole, proposta a' curiosi della opere della natura. *4 pls. 8vo. pp. 16+384 +16. pl.* Extra engraved t.-p. *Rome.*

BURBIDGE, FREDERICK WILLIAM [1847–1920?].
1880. The gardens of the sun: or A naturalist's journal on the mountains and in the forests and swamps of Borneo and the Sulu archipelago. With illustrations. *8vo. pp. xviii+364. front. 25 figs. T. of c. append.* *London.*

Record of less known portions of Malaysia, accounts of birds appearing in the Appendix, pp. 352–64, entitled, 'A contribution to the Avifauna of the Sulu Islands', and 'On collections of Birds from Kina Balu Mt. in North-Western Borneo', both of which have been prepared by Bowdler Sharpe from specimens collected by the author, and which appeared as papers in the *Proc. Zool. Soc.*, 1879, Part II.

BURCKHARDT, RUDOLPH.
1921. Geschichte der Zoologie und ihrer wissenschaftichen Probleme. 2nd ed. *2 vols. 12mo.* *Berlin.*

These small pocket treatises, edited by H. Erhard, form a part of the *Sammlung Goeschen*, and present in compressed form the essence of the subject. They are regarded as a distant bird's-eye view of zoological literature.

← Bunbury, C.J.F. 1848. Journal of a residence at the Cape of Good Hope. G. 8vo.

← Burckhardt, R. 1900-01. Die Nestlinge v. Rhinochetus jubatus und Prophia
capitans u.d. Jugendkleid v. Rhinochetus jubatus. 4to. 3 col. plo.

1923-
Burroughs, Job et al. Birds of America. 3 vols. 4to. many pl (col). New York.

→ Burton, R.G. 1931. A Book of Man-eaters. 8vo. pp. 288, illus. London.

→ Burton, R.F. 1852. Falconry in the valley of the Indus. 8vo. (Autograph J.E. Harting)

BURDEN, W. DOUGLAS.

1927. Dragon Lizards of Komodo. *8vo. illust. New York.*

An interesting and informing account of a trip to the Malaysian and Far East Indian archipelego in search of the Varanus and other large species of 'dragons'. A German translation appeared in 1930 by Graf Alefeld.

1930. Drachenechsen. Eine Forscherfahrt zu den Maranen auf Komodo. *8vo. pp. 155. figs. in text. map. Berlin.*

A translation by Graf Alefeld of the English (1927) edition.

BURDON, *Mrs.* KATHARINE JANET (SUTHERLAND).

1920. A handbook of St. Kitts-Nevis. *12mo. pp. viii+247. front. (fold.). 13 pl. 6 maps (5 col., 4 fold.). T. of c. index. London.*

A handbook for tourists. The birds of the Island are described on pp. 107–11. The present copy is autographed by the author, a letter from whom is attached.

BURG, GUSTAV VON.

[?**1888.**] Vom Vogelzug in der Schweiz. *2 pts. in 1. 8vo. pp. 20+17.* no. t.-p.

The first part (20 pp.) deals with the causes of bird-migration in Switzerland; the second part (17 pages) describes the autumnal migration.

****, **FATIO,** V., and **STUDER,** THEOPHIL.

1889–1916. Catalogue des oiseaux de la Suisse. *See* FATIO, V. and STUDER, T.

1916. *See* STUDER, THEOPHIL.

BÜRGER, OTTO [1865–].

1900. Reisen eines Naturforschers im tropischen Südamerika. *8vo. pp. vi+395. pl. tab. Leipzig.*

BURGESS, THORNTON WALDO [1874–].

1919. The Burgess bird book for children, with illustrations in color by Louis Agassiz Fuertes. *8vo. pp. xvi+353. front. (col.). 31 pl. (col., 56 figs.). T. of c. index. Boston.*

The primary purpose of this book is to interest the child in his feathered friends.

BURMEISTER, CARL HERMANN CONRAD [1807–92].

1840. *See* NITZSCH, CHRISTIAN LUDWIG.

1853. Reise nach Brasilien, etc. *8vo. and ob. folio. pp. 7+608. 1 map. 11 pl. atlas. Berlin.*

Among the chief of many natural history works founded on the author's scientific explorations in Brazil. He later visited and described similar experiences in Argentina, Chile, Uraguay, and other South American republics.

1856. Systematische Uebersicht der Thiere Brasiliens welche während einer Reise durch die Provinzen von Rio de Janeiro und Minas Geraës gesammelt oder beobachtet wurden. *3 vols. 8vo. Berlin.*

The second and third volumes are devoted to the birds of middle South America.

1856. Anatomie der *Coracina scutata. pp. 22. 1 pl.* Author's separate. *Halle.*

1856. Erläuterungen zur Fauna Brasiliens, enthaltend Abbildungen und ausführliche Beschreibungen neuer oder ungenügend bekannter Thier-Arten. *folio. pp. 8+115. 32 pl. Berlin.*

BURNELL, ELIZABETH F. and **WYMAN,** L. E.

1925. Field book of birds of the southwestern United States. *See* WYMAN, L. E.

BURNET, M.

1895. Zoology. *New York.*

BURNETT, *Mrs.* FRANCES ELIZA (*born* HODGSON) [1849–1924].

1913. My robin. *8vo. pp. 60. London.*

BURNS, FRANKLIN LORENZO [1869–].

1915. A bibliography of scarce or out of print North American amateur and trade periodicals devoted more or less to ornithology. *8vo. pp. 32.*

A most useful list of the rarer ornithological periodicals published in America, reprinted from the *Oologist.*

1919. The ornithology of Chester County, Pensylvania. *8vo. pp. 122. front. 20 pl. (5 portr.). T. of c. bibliogr. Boston.*

BURRELL, HARRY.

1927. The Platypus. Its discovery, zoological position, form and characteristics, habits, life history, &c. *pp. 227. 35 pl. index. Sydney.*

A most interesting account of the Duckbilled Platypus by the chief authority on the subject.

BURROUGHS, JOHN [1837–1921].

[**1885**]. Wake-robin. *8vo. pp. [viii]+284. T. of c. Boston and New York.*

This book is mainly devoted to birds, especially as to their distribution, nesting, songs, instincts, and the relations of the sexes.

1894. Riverby. *8vo. pp. [3]+319. T. of c. Boston and New York.*

Many references to birds will be found, principally to their eggs mode of courtship, and nesting habits, etc.

1895. *See* WHITE, *Rev.* GILBERT.

1904–9. Writings. Riverby ed. *15 vols. 8vo. portr. many pl. T. of c. indexes. Boston.*

Part of this well-known collection of essays on natural history was written in 1871; the remainder at various dates since then. The volumes include many chapters on and references to animals and their ways. All the essays have been reprinted.

1906. Bird and bough. *12mo. pp. ix+(1)+70. T. of c. Boston.*

In these verses the author has endeavored to bring home the bough with the bird he heard singing upon it, or some suggestion of its place in the fields and woods and in the season.

1907. Locusts and wild honey. *8vo. pp. [3]+235. front. T. of c. Boston and New York.*

Many references to birds and their nesting, with an account of the Kingfisher in Canada.

1910. In the Catskills. *8vo. pp. xii+251. front. 23 pl. T. of c. Boston and New York.*

The principal bird item consists in a chapter on how, when, and where to find birds' nests.

1912. Fresh fields. *16mo. pp. (8)+309. front. 7 pl. (2 col.). T. of c. index. Boston.*

An account of the author's visit to England, three of the ten chapters being entitled, A hunt for the Nightingale; English and American song-birds; and Impressions of some English birds. The present copy is an autographed one, and forms vol. VI of the Riverby edition.

[**1917**]. Birds of America; [edited by] T. G. Pearson. Consulting editor, John Burroughs. *See* PEARSON, T. G.

[**1922**]. Birds, with pictures from John James Audobon's [!] 'Birds of America', with introduction, by Robert J. Cole. *18mo. pp. 92. London.*

A bibelot illustrated by about 30 cuts of birds in the text, forming a series of talks in Burroughs' charming style.

BURTON-UPON-TRENT NATURAL HISTORY AND ARCHAEOLOGICAL SOCIETY.

1902?–13. Transactions.

BUSHNAN, JOHN STEVENSON [1808?–84].

1840. Nature of Fishes. *31 col. pl.*

BUTLER, Amos William [1860–].

1891. The Birds of Indiana, with illustrations of many of the species. Prepared for the Indiana Horticultural Society, and Originally Published in its Transactions for 1890. *8vo. pp. 135. 97 figs. in text. index.*

This reissue of the paper above referred to is in the form of a separate brochure, a limited number of which were published to form the present author's edition (for presentation, etc.) of which the volume in hand is one. It is an annotated catalogue of species systematically arranged and with a useful index. The author's *Birds of Indiana*, 1898 (q.v.), may be regarded as an enlarged and improved edition of this list.

1898. The birds of Indiana, a descriptive catalogue of the birds that have been observed within the state, with an account of their habits. *8vo. pp. 515–1187. 5 pl. 112 figs. index. Indianapolis.*

A manual descriptive of 404 species said to have been taken in the State, with migration data, distribution, nidification, and general notes on habits, etc. The work was issued both in separate form and in the original inclusive report of the State Geologist.

BUTLER, Arthur Gardiner [1844–1925].

1886. British birds' eggs, etc. *8vo. pp. viii+219. 38 pl. (col.).* *London.*

1890. Foreign Birds for Cage and Aviary. *2 vols. col. front. illust. text.*

1894. Foreign finches in captivity; illust. 60 pl. by F. W. Frohawk, col. by hand. *2 vols. folio.* Paged continuously. Author's interleaved copy with MS. notes. Portrait inserted. 1st ed. Vol. I, *pp. viii+164.* Vol. II, *pp. 165–330.* *London.*

This magnificent work depicts and describes over 80 non-British finches and other cage-birds, discussing their songs, food, and care in captivity. He also gives their natural history.

1896–8. British birds with their nests and eggs. *6 vols. 4to. hand-col. pl.*

A systematic but popular account of the birds of the British Isles, their distribution and nesting habits, etc., illustrated with 318 fine drawings of the birds and 24 colored plates of eggs by Frohawk. The work was originally issued in numbers with the assistance of several colleagues. Vols. 1 and 2 were republished by Butler in 1907–8, with additional colored plates, as *Birds of Great Britain and Ireland.*

1899. Foreign finches in captivity. 2nd ed. Illustrated by F. W. Frohawk. *8vo. pp. viii+317. front. (col.). 59 pl. (col.). T. of c.* *Hull.*

The present edition with printed plates is a reissue of the author's previous work of the same title with hand-colored plates, 4to, 1895–6. The work embraces an account of 80 foreign cage-birds not all of which, however, can be truly considered as finches. Following descriptions of plumage, distribution, etc., each species is discussed with regard to its song, activities, food, and general treatment in captivity.

1900. Foreign bird keeping. *4to. figs. in text. T. of c. append.* Part I, *pp. vii+7–66+2.* Part II, *pp. vii+7–98+2.* *London.*

The forerunner of the author's *Foreign Birds for Cage and Aviary* and written in much the same style.

[**1905**?]. Foreign birds for cage and aviary. *2 vols. 4to. T. of c. index.* Part I. The smaller foreign birds. *pp. 295+2. col. front. Index of scientific names. Numerous figs in text.* Part II. The larger foreign birds. *pp. 304+iii. col. front. Index to scientific names. Numerous figs. in text.* *London.*

A most useful guide for the aviarist and student of popular ornithology.

1907. How to sex cage birds. (British and foreign.) *8vo. pp. 176. 4 col. pl. Over 50 cuts in the text. T. of c. index.* *London.*

A very useful work on the subject. In this connexion the reader is referred to Miss Knobel's article in the *Avicultural Magazine* for 1926 on the sexing of Parrots.

[**1907–8**]. Birds of Great Britain and Ireland; order Passeres; illust. by H[enrik] Grönvold and F. W. Frohawk. *2 vols. 4to.* Vol. I (1907), *pp. (6)+210. front. 4 pl. (col. eggs). 56 pl. (col. birds).* Vol. II (1908), *pp. (6)+216. front. 4 pl. (col. eggs). 51 pl. (col. birds). append. 2 indexes.* *London.*

A reprint with additions and emendations of the first two volumes of the 1896–9 work, *British Birds with their Nests and Eggs*, with the substitution of colored plates; also discussions of 26 species not in the earlier volumes, 18 of which will be found in the Appendix, pp. 202–11. The plates of eggs are the same as those of the earlier work except for altered backgrounds, the plates of birds, however, are new.

BUTLER, Edward Arthur [1845–1925].

1879. A catalogue of the birds of Sind, Cutch Ka'thia'wa'r, North Gugjara't, and Mount Aboo, etc. *8vo. pp. 83.* *Bombay.*

A briefly annotated catalogue of nearly 1,000 species of Indian birds. Most of the text was contributed to the *Bombay Gazetteer* and is here republished with proper pagination and amendment.

1880. A catalogue of the birds of the southern portion of the Bombay presidency. Contributed to the Bombay Gazetteer. *8vo. pp. 113. map.*

A specially entitled separate with inserted addenda, listing and describing 427 species of birds observed within the region described and 97 extralimital forms. The copy in hand is from the P. L. Sclater collection.

BUTTERFIELD, W. Ruskin.

1908. A list of books relating to British birds, published before the year 1815. (From the library of W. H. Mullens.) *8vo. pp. 34. 7 photo. pl.* *Hastings.*

This brochure, reprinted with additions and corrections from Occasional Publication, No. 3, Hastings and St. Leonards Natural History Society, includes most of the early works in which British birds are mentioned or described, with annotations. Inserted is a letter from Major Mullens relating to the subject.

BUTTERWORTH, Hezekiah [1839–1905].

1901. In the days of Audubon; a tale of the 'protector of birds', with an appendix on the formation of Audubon societies. Illust. by B. West Clinedinst and others. *8vo. pp. x+236. front. 7 pl. (1 portr.). 4 figs. (portr.). T. of c. append.* *New York.*

While the story of Audubon's life in this volume is historical fiction, the narrative and illustrated anecdotes are substantially true. There being no American story of Audubon for young people's libraries of historical fiction, the present story of the 'Protector of Birds' would seem to be a needed influence in the growth of the Kindergarten spirit toward birds and dumb animals. The appendix tells how to form an Audubon Society.

BÜTTIKOFER, Johann [1850–1927].

[**1884–6**]. Zoological researches in Liberia; a list of birds, collected by F. X. Stampfli near Monrovia, on the Messurado River, and on the Junk River with its tributaries. *8vo. pp. 243–68.* [*Leyden.*]

An annotated list of 126 species (two new). Twenty-eight of these were new to the list made by Büttikofer and Sala in 1880–2, thus bringing the total list to 192 species, all of which are represented in the Leyden Museum by at least one specimen. (From *Notes from the Leyden Museum*, vol. viii.)

1885. Zoological researches in Liberia; a list of birds, collected by J. Büttikofer and C. F. Sala. *8vo. pp. (2)+129–256. 1 pl. (col.). 1 map. index.* *Leyden.*

A well annotated list of the 164 species obtained by these two collectors during the years 1880–2, in this little known country, an introduction to which is given in pp. 129–50, together with a map showing the author's travels. MS. letter from the author inserted in this copy which was originally in the Tristram Library with bookplate. (From *Notes from the Leyden Museum*, vol. vii.)

→Bykow, A. M. 1896. Sammlung d. Zoolog. Kabinetts d. Warschauer Universität. III: Verzeichnis u. Beschreibung d. Sammlung zur Biologie d. Vögel. 4to. 12 plo.

↑Byam, Geo. 1849. Wild Life in -- Central America. 12mo. ill. mor. 1st ed. London.

1886–7. Zoological researches in Liberia; a list of birds collected by the author and F. X. Stampfli. *8vo. pp. 59–106. 1 map.* [*Leyden.*]

An annotated list of 151 species, 25 being new to lists obtained in 1880–2, and 1884–6, thus bringing the total list up to 217 of the 231 species at present known from Liberia. (From *Notes from the Leyden Museum*, vol. x.)

1886. Contribution to the ornithology of Sumatra. On a collection of birds, made by C. Klaesi, in the highlands of Padang (W. Sumatra) during the winter 1884–85. From the Notes from the Leyden Museum. *8vo. pp. (2)+96. Leyden.*

From this collection of Sumatran birds 189 species are more or less fully described with synonymy, etc. The first important account of the birds of Sumatra is by Sir Stamford Raffles in 1822, who collected 168 species at Bencoolen (S.W. Sumatra) and its vicinity.

1888. Zoological researches in Liberia. Birds. *map.*

This is the second part of the third monograph (1886).

1890–1907. *See* WEBER, MAX C. W.

1894. Ornithologische Sammlungen aus Celebes, Saleyer und Flores. *4to. pp. 38. pl. Leiden.*

Author's reprint from Weber, Max., *Zoologische Ergebnisse einer Reise in Niederlandisch Ost-Indien*, vol. 3, 1894.

[**1895–6**]. [Ornithological and other notes.] *16 pts. in 1 vol. 8vo. pp. 152.* no. t.-p.

These 16 papers—bound into one volume—are from the library of Canon Tristram (with his bookplate), being presentation copies to him from the author.

BUTURLĪN, SERGIUS ALEKSANDROVĪCH.

[**1905**]. Why do birds migrate along the same route? In Russian. *8vo. pp. 19.*

A serious contribution to this migration mystery.

ca. **1905.** Die geographische Verbreitung der Fasanen. *8vo. pp. 71. map. many text-figs.* In Russian; t.-p. in German. *Kolyma.*

BUXTON, EDWARD NORTH [1840–1917].

1885. Epping Forest. 2nd ed. *16mo. pp. xii+139. 25 figs. 6 maps (col., 4 fold.). T. of c. London.*

A guide-book. Lists are given of the forest flora and fauna. The first edition was published in 1884.

BUXTON, PATRICK ALFRED [1892–].

1923. Animal life in deserts, a study of the fauna in relation to the environment. *pp. xv+176. 43 figs. T. of c. index. London.*

A very instructive and interesting account of deserts, their climate, soils, rains, water-courses, and especially their influence on the animals and plants which find a living there. The author argues against the old belief that pale sandy tints of desert mammals and birds are protective, suggesting that some other 'explanation will eventually be found in studying the effects of physical conditions upon animal-life'.

BUZZARD, THE.

1926–7. A Hard Boiled Magazine. Published by the Cuckoo Ornithological Club. *8vo. illust.* Annual.

A compeer of the *Auklet* and issued for the same purpose, viz. to afford some harmless amusement for the members of the Cooper Ornithological Club (California) at their yearly dinner. All the contributions are, of course, anonymous. Vol. I, 1926; vol. II, 1927.

BYALUINĪTZKIĬ-BĪRULYA, ALEKSANDR ANDREEVĪCH. *See* BĪRULA, ALEXANDER.

BYERLEY, ISAAC.

1854. The fauna of Liverpool. *8vo. pp. 124. 1 pl. (col.). addend. 2 indexes. Liverpool.*

BYRNE, L. W. *See* CHALLENGER SOCIETY, 1909.

BYRON, JOHN [1723–86].

1767. A voyage round the world, in his Majesty's ship the Dolphin commanded by the Honourable Commodore Byron. In which is contained, a faithful account of the several places, people, plants, animals, etc. seen on the voyage, and, among other particulars, a minute and exact description of the straights of Magellan, and of the gigantic people called Patagonians. By an officer on board the said ship. *8vo. pp. 4+186. 3 pl. London.*

One of the classic voyages in which several new species are described. There are several editions and translations of this report entered in this Catalogue. The above is the second edition.

1769. Reise um die Welt, in den Jahren 1764 und 1765, nebst einer genauen Beschreibung der Magellanischen Strasse, der Patagonischen Reisen, und der ganz neu-entdeckten sieben Inseln in der Süd-See. *pp. 326. 1 pl. Frankf. and Leipzig.*

German edition of the original English voyage of H.M.S. 'Dolphin'.

BY THE WAYSIDE. (Wisconsin and Illinois Audubon Societies.) *Madison, Wis.*

1898–1914. Vols. I–XV (all pub.).

In spite of its irregularities this popular magazine has a most useful life and from an examination of the volumes accessible to the Compiler seems to have enjoyed the support of many painstaking ornithologists, among them Roland R. Kremers and F. S. Brandenburg of Madison; Thos. E. Moyle of Appleton, Wis.

C., C.

1898. Riviera nature notes. A popular account of the more striking plants and animals of the Riviera and the Maritime Alps. *12mo. pp. xx+373. front. 4 pl. 25 figs. T. of c. Manchester.*

The bird matter is very fragmentary and is contained in chapter XLI.

1903. Agrestia Ligustica. Riviera nature notes. *8vo. pp. xv+(1)+402. front. 31 pl. 93 figs. T. of c. 3 append. index. London.*

An enlarged and revised edition of the first issue of 1898. The bird notes are in chapter XLIII, pp. 305–11.

CABANIS, JEAN LOUIS [1816–1906].

1845–6. Ornithologie [of Peru] . . . mit Anmerkungen von J. Cabanis. *See* TSCHUDI, J. J. VON.

1854. *See* LICHTENSTEIN, M. H. C.

1869–79. *See* DECKEN, C. C. VON DER.

(THE) CABINET CYCLOPAEDIA, conducted by D. Lardner. *See* SWAINSON, W.

CABINET OF NATURAL HISTORY AND AMERICAN RURAL SPORTS, WITH ILLUSTRATIONS. 1830–4. *Philadelphia.*

CABOT, J. ELLIOT. *See* AGASSIZ, LOUIS, 1850.

CABRERA, ANGEL.

[**1922**]. Libros de la Naturaleza; El mundo alado. *8vo. pp. 93+(1). front. vignette. 6 pl. 27 figs. index.* [*Madrid.*]

Popular Spanish booklet on the winged world, inculcating principles of protection of insect-eating birds, with illustrations of strange nests and other subjects.

1922. Manual de Mastozoologia. *pp. 440, 176 figs. Madrid.*

CAEN. *See* MUSÉE D'HISTOIRE NATURELLE DE CAEN.

CAGE BIRD CLUB. Transactions.
1893–6. Vols. 1–3. *8vo. map.* Probably no more issued. Edited by W. H. Betts and Thos. Marshall. *London.*

This is a useful little magazine devoted to birds in captivity. A number of short articles by members and friends are given.
Vol. I. 1893–4. *pp. 120.* Divided (but not numbered nor dated) into 4 pts.; paged separately. Vol. II. 1894–5. *pp. 230. col. map. consecutive pagination. index.* Vol. III. 1895–6. *pp. 134. index.* (All issued?)

CAGE BIRDS ANNUAL.
1903–*date.* A Year Book of the Bird World, etc. *4to. T. of c.*

This periodical gives a well-edited review of such as may be obtained by purchase in the British market. In addition to its trade interests there are many articles of decided scientific value, and several dealing with wild birds.

CAGE BIRDS AND BIRD WORLD.
1902–*date.* A Weekly Journal for Everybody Interested in Cage and Wild Birds. *sm. folio. 2 vols. (26 nos. each) per annum. illust. by cuts and col. pl.* *London.*

This popular and trade magazine contains much that is of scientific value as well as numerous entertaining and instructive papers, notes, queries, and replies on cage birds—both domestic and foreign. It reflects, in fact, that widespread interest in bird life and bird culture that especially characterizes the British people.
Certain departments are in charge of well-known writers. E. G. Wesley Page has for many years written on and replied to questions regarding Foreign Cage and Aviary Birds.
The periodical certainly deserves a place in any complete library on ornithology.

CAGE BIRD WORLD. **1919**–*date.* *Baltimore, Md.*

CAHN, Alvin Robert [1892–].
1926. The spiny dogfish; a laboratory guide. *8vo. pp. 14+94.* *New York.*

1927. (An) ecological study of southern Wisconsin fishes. *4to. pp. 151. pl. diagr. maps.* (Illinois biological monographs, vol. 11, no. 1.) *Urbana.*
Author's separate.

CAIRO. Ghizeh zoological gardens.
1900–12. Annual Report. *Cairo.*
Subsequent reports were issued as part of those on the Zoological service, for which *see* EGYPT.

******. Musée des antiquités égyptiennes.**
1905. Catalogue général des antiquités égyptiennes du Musée, vol. 25. La faune momifiée de l'antique Égypte par Claude Gaillard et Georges Daressy. *folio. pp. 2+159. illust. pl.* (Service des antiquités de l'Égypte.) *Le Caire.*

******. Egyptian Government Zoological Gardens.** *See* GIZEH, EGYPT. ZOOLOGICAL GARDENS.

CAIUS, John [1510–73].
1570. De Canibus Britannicis, liber unus. De rariorum Animalium & Stirpium historia, liber unus, etc. *8vo.* [O.] *London.*
The extremely rare *editio princeps* of a famous treatise on English dogs, and other natural history subjects.

1729. De Canibus Britannicis, liber unus; De rariorum Animalium & Stirpium historia, liber unus, etc. *8vo. pp. 16+249.* *London.*
A late edition of a celebrated work, the first published in 1570.

1880. Of Englishe Dogges, etc. Tr. by Abraham Fleming from the Latin edition of 1576. Reprinted. [O.] *London.*

CALCUTTA JOURNAL OF NATURAL HISTORY, 1840–7.
Complete from the commencement in 1841 to conclusion in 1848. Being vols. 1–7, and the rare two parts issued for vol. 8, with general index, bound in 7 vols.
A rare and valuable set of great interest to zoologists.

CALCUTTA. Indian Museum.
1899. A descriptive Catalogue of Indian Deep-sea Fishes . . . collected by the 'Investigator'. *4to. pp. 3+211+8. col. map.* *Calcutta.*
A valuable account by A. Alcock.

CALDERWOOD, William Leadbetter.
1908. The life of the salmon with reference more especially to the fish in Scotland. 2nd imp. *23½ cm. pp. xxiv+160. front. 7 pl.* *London.*

CALIFF, Gladstone.
1924. Permanent bird houses. *8vo. pp. 64. 36 pl. 6 figs. T. of c. index.* *Milwaukee, Wis.*

CALIFORNIA ACADEMY OF SCIENCES.
Formerly California Academy of Natural Sciences. *San Francisco.*
1884–7. Bulletin.
1868–1905. Memoirs.
1890–*date.* Occasional Papers.
1854–76. Proceedings. Series 1.
1888–96. Proceedings. Series 2.
1907–*date.* Proceedings. Series 3.
1897–1906. Proceedings (Zoology).
Owing to various accidents (the great fire, etc.) complete sets of these important periodicals are rarely on the market. Some early numbers seem to have been privately printed.

CALIFORNIA FISH AND GAME. **1914**–*date.* *San Francisco, Sacramento.*

CALIFORNIA TRAVELLER AND NATURALIST. *Napa, San José.*
1892–3. Also appeared as Traveller and Naturalist.

CALIFORNIA UNIVERSITY.
1908–*date.* Memoirs.
1902–*date.* Publications in Zoology.
1916–*date.* Bulletin of Scripps Institution for Biological Research.

CALUALI, Louis.
1829. Verzeichniss der Ornithologischen Sammlung. *4to.* *Darmstadt.*

CALVERT, Robert [1816–91].
1884. Notes on the geology and natural history of the county of Durham. *8vo. pp. [4]+184. diag. map.* *Bishop Auckland.*

CALWER, C. G. [–1874].
1854. Recensio avium. *Stuttgart.*

(THE) CAMBRIDGE NATURAL HISTORY, ed. by S. F. Harmer and A. E. Shipley.
1909. Vol. IX. Birds. By A. H. Evans. *pp. xvi+635. front. (map col. fold.). 144 figs. T. of c. index.* *London.*
The present volume, a reprint of the first edition of 1899, forms vol. no. IX of *The Cambridge Natural History*, published in ten

← Calderwood, H. 1893. Evolution and man's place in nature. 8vo.

← Caldwell, Harry R. and John C. South China Birds. pp. 447. 6 col. pl. 75 half-tones. Shanghai. (Great Library, No. 340)

← Caldesi. Giov. B. 1687. (méd. ital. du 17e s.) Osservazioni anatomiche. intorno alle lanlánughe maritime, d'acqua dolce, e terrestri. Scritte in una lettera a franc. Redi. Firenze, Matini, 1687, in-4. avec 9 pl. gr. s. cuivre. Vélin.

→ Campana 1875. Rech. d'anat. de physiol. et d'organogénie p. la determin. d. lois de la genèse et l'evolution d. espèces animales. I. Physiol. de la respiration ch. l. oiseaux; anat. de l'appareil pneumatique-pulmonaire, d. faux-diaphragmes, d. séreuses et de l'intestin ch. le ponlet. 4to. figs., 16 plo.

volumes, 1895–1909. A general review of the birds of the world with a short description of the majority of the forms in many of the families, and of the most typical or important of the innumerable species included in the large Passerine order. Prefixed to each group is a brief summary of the structure and habits; a few further particulars of the same nature being subsequently added where necessary, with a statement of the main fossil forms as yet recorded. Another reprint was issued in 1922.

1922. Volume nine. Birds by A. H. Evans. *8vo. pp. xvi+635. front. (map col. fold.). 144 figs. T. of c. index.* *London.*

A reprint of the 1909 issue, which itself was a reprint of the first edition of 1899, without alterations.

CAMBRIDGE NATURAL SCIENCE MANUALS.

1898. Outlines of vertebrate palaeontology for students of zoology. *See* WOODWARD, ARTHUR SMITH.

CAMBRIDGE PHILOSOPHICAL SOCIETY. *Cambridge, Eng.*

1843–*date.* Proceedings.

1820–*date.* Transactions.

CAMBRIDGE UNIVERSITY.

1909. Darwin centenary; the portraits, prints and writings of Charles Robert Darwin. By J. C. Simpson. *8vo. pp. 6+47.* *Cambridge.*

CAMELOT SERIES.

1887. Ed. Ernest Rhys. The natural history of Selborne. *See* WHITE, *Rev.* GILBERT.

CAMERANO, LORENZO.

1905–9. Materiali per la storia della Zoologia in Italia. *8vo.* (Bollettino dei Musei di Zoologia . . . di Torino. Vols. XX–XXIV.) *Torino.*

Author's separate, furnishing a brief but systematic review of zoological literature from the earliest to the latest times.

CAMPBELL, ARCHIBALD JAMES.

1901. Nests and eggs of Australian birds, including the geographical distribution of the species and popular observations thereon. With map, 28 coloured plates and 131 photographic illustrations. *2 vols. 8vo.* Vol. I, *pp. xl+524. front. (portr.). 69 pl. (1 col.). 1 map. index.* Vol. II, *pp. (2)+525–1102. front. (portr.). 47 pl. 27 pl. (col. eggs). append. index.* *Sheffield.*

A most interesting account of the nidification of 765 Australian birds, with copious notes and beautiful photos of nests and nesting sites as well as 27 colored plates of eggs. The portraits are of John Gould and the Author, and there is also a colored plate in vol. I of the Rose-breasted Robins with nest and eggs.

CAMPBELL, JAMES.

1773. A treatise of modern faulconry: To which is prefixed, from authors not generally known, an introduction, shewing the practice of faulconry in certain remote times and countries. *8vo. pp. iv+264. 1 pl. T. of c. glossary.* *Edinburgh.*

The introduction, pp. 29–118, gives an account of falconry in remote times and countries, being followed by the treatise, pp. 121–257, of the different hawks used, the method of training and flying them, etc., with a glossary of the technical terms of falconry, pp. 259–64. The plate with five figures forms a frontispiece to the treatise in this copy, and not to the volume in general.

CAMPER, PETER [1722–89].

1782. Natuurkundige Verhandelingen over den Orang Outang; en eenige andere Aapsoorten over den Rhinoceros met den Dubbelen Horen; en over het Rendier. *4to. pp. 4+235. pl.* *Amsterdam.*

1791. Dissertation sur les Variétés naturelles qui caractérisent la physionomie des Hommes, etc. Tr. from the Dutch by H. J. Jansen. *4to. illust. 11 pl.* [O.] *Paris.*

1792. Discours sur le moyen de représenter . . . les diverses Passions, etc. Tr. from the Dutch. *4to.* *Utrecht.*

CANADA.

1906. Report on the Dominion Government expedition to Hudson Bay and the Arctic Islands on . . . the D. G. S. Neptune, 1903–4. *8vo. pp. 17+355. 52 pl. 1 col. map. illust. text.* *Ottawa.*

This report was made by A. P. Low (1861–), a prominent Canadian naturalist. In Appendix II there is a 'List of Birds and Eggs by A. Halkett assisted by Prof. Macoun and Rev. Mr. Eifrig'.

CANADA. Conservation Commission of.

1916. Conservation of fish, birds and game; proceedings at a meeting of the Committee on fisheries, game and fur-bearing animals, Nov. 1915. *4to. pp. (10)+218. front. 15 pl. T. of c. 6 append. index.* *Toronto.*

The report on birds, pp. 141–60, with one illustration.

CANADA. Dominion parks branch.

1914. Handbook of the Rocky Mountains Park Museum. *See* SMITH, HARLAN I.

[**1920**]. Ministers of agriculture give views on bird protection: Why Saskatchewan believes in bird protection by C. M. Hamilton—Our obligation to the birds because of their usefulness to agriculture—A tribute to the value of birds by H. W. Doherty—The value of birds [for] Valentine Winkler. *8vo. pp. 13.* *Ottawa.*

1926. Birds a national asset. Views of provincial ministers of agriculture. *8vo. pp. 16.* *Ottawa.*

In this pamphlet the views of six Ministers of Agriculture are given as follows: viz. John H. Myers, Prince Edward Island; M. Cumming, Nova Scotia; Geo. Maheux, Quebec; V. W. Jackson, Manitoba; Chas. M. Hamilton, Saskatchewan; and F. M. Rendell, Alberta. A similar pamphlet appeared in 1920.

CANADA. Interior, Department of.

1920. Migratory birds convention act (with amendments). *8vo. pp. 16.* *Ottawa.*

An Act respecting a certain Convention for the Protection of Migratory Birds into Canada and the United States. A very important arrangement for the salvation of game birds.

1922. Edition of September 1, 1922. Federal regulations for the protection of migratory birds. *8vo. pp. 16.* [*Ottawa.*]

This Convention Act was further amended in 1923 and 1924.

1923. Edition of September 1, 1923. Federal regulations for the protection of migratory birds. *8vo.* *Ottawa.*

[**1924**]. Edition of September 1, 1924. The migratory birds convention act and federal regulations for the protection of migratory birds. *8vo. pp. 21.* *Ottawa.*

An enlarged edition of the issues of 1922 and 1923 brought up to date.

1925. Edition of September 1, 1925. The migratory birds convention act and federal regulations for the protection of migratory birds; the consolidated statute. *8vo. pp. 32.* *Ottawa.*

An amended edition of the issue of 1924 brought up to date.

[**CANADA. Interior, Department of** (*contd.*)]

1927. Edition of September 1, 1927. The migratory birds convention act and federal regulations for the protection of migratory birds. The consolidated statute. *8vo. pp. 35.* *Ottawa.*

An amended edition of the issue of 1925.

[**1927**]. Three lessons on bird protection. I.—The value of birds to man. II.—How birds are protected. III.—How children can assist. Authorized by all the Provinces for use in the schools of Canada. Compiled from articles by R. W. Tufts, H. F. Lewis, J. A. Munro. *8vo. pp. 16.* *Ottawa.*

CANADA. McGill University Publications. In Series. Nos. 1–19. [Series 7 (Library), No. 19, was published in 1930.]

CANADA. National parks branch.

1928. Jasper National Park, by M. B. Williams. *8vo. pp. 4+176. illust. pl. maps.* *Ottawa.*

n.d. Common birds of eastern Canada. *4to. 25 pl.* *Ottawa.*

CANADIAN ALPINE JOURNAL.

1912. Published by the Alpine Club of Canada. *8vo. pp. 97. 17 pl. 1 map. T. of c.* *Winnipeg.*

Birds by J. H. Riley, pp. 47–75.

CANADIAN ARCTIC EXPEDITION, Reports. *See* CANADA, 1906.

CANADIAN FIELD NATURALIST. (Ottawa Field Naturalists' Club.) **1887**–*date.* *Ottawa.*

CANADIAN FISH AND GAME. 1907–21. *Toronto.*

CANADIAN HANDBOOK AND TOURIST'S GUIDE, etc.

1867. *8vo.* *Montreal.*

CANADIAN INSTITUTE. *See* ROYAL CANADIAN INSTITUTE.

CANADIAN NATURALIST AND QUARTERLY JOURNAL OF SCIENCE, with **Proceedings of the Natural History Society of Montreal.** *Montreal.*

1856–63.

1864–83. New Series.

CANADIAN NATURAL SCIENCE NEWS. **1897?** *Baden, Ont.*

CANADIAN ORNITHOLOGIST, THE. A monthly Record of Information relating to Canadian Ornithology. *8vo.* Pictured and tinted cover. Edited by Dr. A. M. Ross, Toronto. Published by Willing and Williamson, Toronto. Vol. I, No. 1, 1873. *T. of c. pp. 20. illust. with 7 cuts in the text.* *Toronto.*

Of this rare little magazine there has been published, so far as the Compiler can discover, only this number. The editor of the magazine seems to have written all the articles including one on the food of Canadian Birds and another on their classification.

CANADIAN RECORD OF SCIENCE, including the **Proceedings of the Natural History Society of Montreal** and replacing the *Canadian Naturalist.* **1884–1916.** *See also* CANADIAN NATURALIST. *Montreal.*

CANADIAN ROYAL SOCIETY. *See* ROYAL SOCIETY OF CANADA.

CANADIAN SPORTSMAN AND NATURALIST. *Montreal.*

1881–3. *8vo. See also* COUPER, WILLIAM.

Of this monthly journal three vols. were published.

CANARY AND CAGE-BIRD LIFE. Being the Canary, British, and Foreign Bird Section of *The Feathered World.* (Founded 1889.) Edited by Mrs. Comyns-Lewer. Weekly. *4to. illust.* Vols. 1–18, 1905–14 (all issued). *London.*

Merged with *The Feathered World* (q.v.).

CANARY BIRD; a moral fiction. 1799. *See* ANONYMOUS.

CANESTRINI, G. *See* CORNALIA, E., 1870–4, *ed.*

CANIVET DE CARENTAU, EMMANUEL. *See* MASSÉNA, A., 1846.

CANTOR, THEODORE EDWARD [1809–79?].

1842. Zoology of Chusan. *4to. pp. 32. 13 pl. (col.).* *Calcutta.*

CAPE HORN.

1887–91. Mission Scientifique du Cap Horn. (Ministères de la Marine et de l'Instruction Publique.) *4to.* *Paris.*

An important series that deals to some extent with the general zoology of the southern part of South America.

CAPEK, WENZEL.

1896. Beitraege zur Fortpflanzung des Kuckucks. *8vo.*

CAPELLINI, GIOVANNI [1833–1905?].

1862. Studi stratigrafici e paleontologici sull'infralias nelle montagne del Golfo della Spezia. *folio. pp. 75. pl. tab.* *Bologna.*

CAPELLO, FELIX DE BRITO and **BARBOZA DU BOCAGE,** J. V.

1866. Apontamentos para a Ichthyologia de Portugal, etc. *4to. pp. 40. 3 col. pl.* Portuguese and French in parallel columns. (Wanting.) *Lisbôa.*

CAPEN, ELWIN A.

1886. Oölogy of New England; a description of the eggs, nests and breeding habits of the birds known to breed in New England. *folio. pp. 116. 25 pl. (col.). index.* *Boston.*

A popular work on the eggs, nests, and breeding habits of New England birds, with colored illustrations of their eggs.

CAPITA ZOOLOGICA. **1921**–*date.* *The Hague.*

CAPPONI, PIETRO.

1899. Avifauna della provincia di Ascoli Piceno, etc. Ascoli Piceno. *1 vol. 4to. pp. 162+3. index.*

Author's presentation copy. Both the vernacular and the zoological names of the birds of the Italian Province Ascoli Piceno are given.

CARA, GAETANO.

1842. Elencho degli Uccelli che trovansi nell' Isola di Sardegna od Ornitologia sarda, etc. *8vo. pp. xii+207. index.* *Torino.*

A systematic but brief description of 265 species (arranged in genera) of birds inhabiting or visiting the island of Sardinia.

CARACAS. Museo Nacionales.

1921–*date.* Boletin.

1912–*date.* Gaceta.

→ Caum, E. tr.. 1933 Exotic Birds of Hawaii. Honolulu.

→ 1849. (Cantin T.E.) J. Roy. Asiatic Soc. Bengal. 18. 983.

→ ~~Carpenter, Prof. George H. 1921. Insect Transformation, 4 pl and 12 or other Illus, 8vo, Cloth, pp 282. London.~~

→ 1847. Zoology: Systematic account of the principal families of the animal kingdom. 2v. cr. 8vo.

CARACAS. Universidad Central.
1900–*date*. Anales.

1887–91. Revista Científica.

CARCANO, FRANCESCO [1500–80].
1622. I tre libri de gli uccelli da rapina; con un trattato de' cani da caccia. *16mo. pp. (16)+217. vignette. 12 figs. (6 head-pieces). T. of c. Vicenza.*
In his preface Carcano (also called Sforzino) states that this treatise is the result of 40 years' experience as a falconer, and the perusal of all the Italian and French books he could find relating to Falconry. It is one of the best known Italian works on falconry and was extensively copied by subsequent writers; numerous editions are known, the first appearing in 1547. The present copy contains the separately printed woodcut on the last leaf.

1645. Del l'arte del strucciero; con il modo di conoscere e medicare falconi, astori e sparavieri, et tutti gli uccelli di rapina. *12mo. pp. 82. illust. T. of c. Milano.*
Another curious work on falconry illustrated by woodcuts in the text, among them pictures of instruments used in treating accipitrine diseases. Not listed in the *Br. Mus. Nat. Hist. Cat.*

CARDANO, GIROLAMO [1501–76].
1557. De rerum varietate libri XVII. Adiectus est capitum, rerum & sententiarum notatu dignissimarum index. 1st ed. *folio. pp. 12+708+32. illust. Basileae.*

CARDIFF NATURALISTS' SOCIETY.
Cardiff, Wales.
1867–*date*. Report and Transactions.

1900. The birds of Glamorgan. *4to. pp. xxv+27–163. front. 4 pl. index. Cardiff.*
An annotated list of the 235 species, compiled by a committee of the society.

CARDINAL, THE.
1923–*date*. Pub. (twice a year) by the Audubon Society of the Sewickley Valley. *Sewickley, Pa.*
An attractive little magazine recording the activities of the Audubon Societies of western Pennsylvania. Most of the volumes are a present to the E.S.W. Library from the editor.

CAREW, RICHARD.
1811. The Survey of Cornwall. *4to.*

CARINTHIA.
1852–1930. Naturhist. Landesmuseum von Kaernten. Jahrbuch &c. Hefte 1–45. *Klagenfurt.*

CARL, F., *Pub.*
n.d. The canary. *24mo. pp. 25. 1 fig. London.*
Instructions for keeping it in health and song, and management during the breeding season. Forming booklet No. 5 of the 'Nutshell Series'.

n.d. The border fancy canary. *24mo. pp. 26. 1 fig. London.*
Instructions for keeping in health and song; also management during the breeding season. Forming booklet No. 23 of the 'Nutshell Series'.

n.d. Green canaries. *24mo. pp. 25. London.*
Instructions for breeding, keeping, and exhibiting the Norwich and Yorkshire varieties. Forming booklet No. 24 of the 'Nutshell Series'.

CARLEER, LÉON HENRI MARIE.
1861. Examen des Principales Classifications. *8vo. Bruxelles.*

CARLIER, CLAUDE.
1770. Traité des bêtes de laine; ou, Méthode d'élever et de gouverner les troupeaux aux champs, et à la bergerie. *2 vols. 4to. Paris.*

CARON, JOS. ED.
[1920]. Our obligation to the birds because of their usefulness to agriculture. *See* CANADA. DOMINION PARKS BRANCH. Ministers of agriculture give views on bird protection.

CARPENTER, ALFRED [1847–1925] and **BARKER,** D. W.
1926. Nature notes for ocean voyagers, etc. 2nd ed. *8vo. pp. xi+(1)+212. front. 2 pl. (portr.). 152 figs. (27 birds). 1 map (fold.). T. of c. glossary. index. London.*
Bird notes on sea birds will be found in chapter IV, pp. 48–68.

CARPENTER, GEOFFREY DOUGLAS HALE.
1920. A Naturalist on Lake Victoria. *8vo. pp. 333. map. col. pl., and 87 other illust. (London.)*
Devoted to mammals, birds, reptiles, etc., of Africa, the results of 40 months' intensive study on the shores and uninhabited islands of Lake Victoria, the second largest lake in the world.

1925. A naturalist in East Africa; being notes made in Uganda, ex-German and Portuguese East Africa. *8vo. pp. 187+(17). front. 24 pl. 3 maps (1 fold.). 2 figs. T. of c. Oxford.*
Notes on the fauna observed during the years 1914–18, whilst engaged as a Medical Officer in various hospitals during the Great War.

CARPENTER, WILLIAM BENJAMIN [1813–85].
1844. Popular Cyclopædia of Natural Science. Zoology, being a sketch of the classification, structure, distribution, and habits of animals. *2 vols. London.*
The portion relating to Birds are treated in vol. I, chapter IV, pp. 361–522, with 128 illustrations (figs. 177–304). A new edition, thoroughly revised by W. S. Dallas, was issued in 1857–8 and again in 1866–71 (q.v.).

1849. *See* CUVIER, G. L. C. F. D.

1857. Zoology; being a Systematic account of the general structure, habits, instincts, and uses of the principal families of the animal kingdom. *2 vols. 8vo.* Vol. I, *pp. vi+586. 344 figs. T. of c. London.*
A new edition under a somewhat different title, edited by W. S. Dallas, of the author's original work published in 1844 (q.v.). It forms one of the volumes in Bohn's Scientific Library. Birds are treated in chapter IV, pp. 361–522, with 128 fine wood engravings, the index being in vol. II. A further edition, apparently without alterations, appeared in 1866 (q.v.).

1866. Zoology; being a Systematic account of the general structure, habits, instincts, and uses of the principal families of the animal kingdom; as well as of the chief forms of fossil remains. *2 vols. 8vo.* Vol. I, *pp. vi+586. 344 figs. T. of c. London.*
A reprint of the 1857 edition.

CARRIÈRE, JUSTUS WILHELM JOHANNES [1854–93].
1885. Die Sehorgane der Thiere, etc. *8vo. pp. vi+205. 1 pl. München.*

CARSTED, A.
n.d. Unsere Vögel in Sage, Geschichte und Leben. 2nd ed. *4to. pp. 118. illust. pl. Leipzig.*
Folk-lore of birds in rhyme. Among the illustrations is one of the battle between the cranes and the pygmies.

CARTWRIGHT, GEORGE.
1792. A Journal of Transactions and Events . . . during a residence of sixteen years on the Coast of Labrador, etc. *3 vols. 4to. illust. Newark.*

CARUS, IULIUS VICTOR [1823–1903].

1861. Bibliotheca Zoologica. *2 vols. 8vo.* Continuation of Engelmann's Bibliotheca Historico-Naturalis (1700–1846); further continuation, Taschenberg's Bibliotheca Zoologica, 5 vols., 1886–1907. *London and Leipzig.*

One of the most important works on zoological bibliography extant and of immense value to the librarian and advanced student. For a more complete annotation *see* ENGELMANN, WILHELM, 1846.

[**1863**]–**75.** Handbuch der Zoologie. *2 vols. 8vo. Leipzig.*

One of the best systematic treatises on the subject. Only the first volume deals with vertebrates, by Carus; vol. 2 is on invertebrates by the author and C. E. A. Gerstaecker.

1872. Geschichte der Zoologie bis auf J. Müller und C. Darwin. *8vo. pp. 12+739. München.*

This important work of reference forms vol. XII of the *Geschichte der Wissenschaften in Deutschland, Neuere Zeit.* The French translation by P. O. Hagenmüller, Louis Olivier, and E. de Tannenberg, and notes by A. Schneider, Paris, 1880, is much to be preferred on account of the numerous additional comments and the later quotation of authorities. Both are, however, admirable treatises.

1880. Histoire de la zoologie depuis l'antiquité jusqu'au XIX^e^ siècle; tr. [de l'allemand] par P. O. Hagenmüller et notes par A. Schneider. *8vo. pp. 8+623. Paris.*

A most important work of reference, much utilized by the present Compiler.

1884. Prodromus faunae Mediterraneae. *Stuttgart.*

CARVER, JONATHAN [1732–80].

1778. Travels through the Interior of North America, etc. *1 vol.*

The first edition of an important Americana zoologica.

CARY, MERRITT.

1911. A biological survey of Colorado. *8vo. pp. 256. illust. pl. map.* (North American fauna, no. 33.) *Washington.*

CASSEL. Verein für Naturkunde zu Cassel. (Founded 1836.)

1837–47. Jahresbericht (1st series).

1847–60. Bericht (2nd series).

1860–94. Bericht, etc. (3rd series).

1894–1930. Abhandlungen und Bericht.

CASSELL'S BOOK OF BIRDS.

?1875. From the text of Dr. Brehm, by Thos. Rymer Jones. *4 vols. col. pl. London.*

CASSELL'S NATURAL HISTORY.

1876–83. Edited by P. Martin Duncan. *6 vols. 4to. illust. London.*

The first five volumes of this attractive, popular, and systematic work contain the vertebrate zoology. The monkeys are described by the Editor, the carnivora and other mammals by W. K. and T. J. Parker, W. B. Dawkins, H. W. Oakley, A. H. Garrod, and the Editor; R. B. Sharpe describes the birds; the Editor the reptilia and amphibia; and H. G. Seeley the fishes.

1883–9. Aves. *See also* SHARPE, R. B.

A separate and amended edition on the birds, by Bowdler Sharpe.

n.d. Natural History. *6 vols. 4to. London.*

This undated edition differs slightly from the 1876–83 issue.

CASSERLY, GORDON.

1925. Dwellers in the jungle. Illust. by Warwick Reynolds. *8vo. pp. 7+255. front. 15 pl. T. of c. London.*

The author says he describes them as he knew them—these dwellers in the jungles of the Terai, the Satpura, the Kanera, and central India.

CASSIN, JOHN [1813–69].

1845–76. *See* UNITED STATES. VOYAGE, WILKES EXPEDITION.

[**1851–3**]. Catalogue of the Vulturidae in the collection of the Academy of natural sciences of Philadelphia. *8vo. pp. (8)+(20)+(16)+(20)+(16). Philadelphia.*

This catalogue gives the names of the various species of five families represented in the collection of the Academy of Natural Sciences of Philadelphia. They are really five catalogues bound in one, from the Godman library with bookplate.

1852. Ornithological report of birds brought from Syria, &c. *See* LYNCH, W. F., OFFICIAL REPORT OF THE U.S. EXPEDITION TO EXPLORE THE DEAD SEA, &c. Art. IV.

1853–6. Illustrations of the birds of California, Texas, Oregon, British, and Russian America. Intended to contain descriptions and figures of all North-American birds not given by former American authors, and a general synopsis of North American ornithology. *4to. pp. viii+298. front. (col.). 49 pl. (col.). T. of c. index. Philadelphia.*

This work was issued in ten parts from 1853–5, the preface, contents, and index being added in 1856. In the preface (proposed) further volumes are mentioned, which, however, never materialized. Fifty species are fully described and figured, and many more are treated briefly in the synopsis. Three species are described as new. The plates are colored by George G. White.

The following notes, furnished by Dr. C. W. Richmond, are inserted in an incomplete copy, some parts of which are of the first edition, with the original wrappers, now in the E.S.W. Library: 'No. 1 (first edition) was published in 1852 and is now very rare (see Fox, *Auk*, 1901, pp. 291, 292). I do not know how many copies are extant but there is one in Phila. Acad. Library, and one in National Museum here. It is the only part of which there was a second edition, but as the printers used the same cover for several parts, altering the number of the part to suit, they failed to scratch out the "Second edition" feature of it, and persons who see the covers may be misled.

'No. 1 (edition two), *pp. 1–30, pls. 1–5,* received by Phila. Acad. July 12, 1853.

No. 2, *pp. 31–62, pl. 6–10,* received by Phila. Acad.			Nov. 8, 1853.
No. 3, *pp. 63–96, pl. 11–15*	,,	,,	Feb. 7, 1854.
No. 4, *pp. 97–128, pl. 16–20*	,,	,,	May 9, 1854.
No. 5, *pp. 129–58, pl. 21–5*	,,	,,	July 11, 1854.
No. 6, *pp. 159–90, pl. 26–30*	,,	,,	Sept. 12, 1854.
No. 7, *pp. 191–212, pl. 31–5*	,,	,,	Nov. 21, 1854.
No. 8, *pp. 213–40, pl. 36–40*	,,	,,	Mar. 13, 1855.
No. 9, *pp. 241–72, pl. 41–5*	,,	,,	June 12, 1855.

No. 10, *pp. 273–98, introductory pages, title, etc., and pls. 46–50.*

'I have not found any date for it in the Academy's printed minutes, but as the title is dated 1856, I presume it was issued in that year.

'I have not seen an original No. 10, but the above pages and plates are those that were left over after No. 9 was issued, I am taking it for granted that they were all issued at one time in No. 10.

'The dates of receipt by the Academy are probably fairly good as dates of publication, as Cassin doubtless handed in a copy of each part as published, but the dates are not absolute, as the ones given above were the dates of meetings of the Academy, and the parts may have been handed in to the Academy Library several days before.'

1855. Report on Birds during the U.S. Naval Astronomical Expedition to the Southern Hemisphere, 1849–1852. *2 vols. folio. Birds,* vol. II, *pp. 172–206. col. pl. Washington.*

The descriptions are mostly of Chilean birds.

1855–9. *See* UNITED STATES. PACIFIC RD. SURVEY.

1856. Narrative of the expedition of an American squadron to the China seas and Japan. *See* PERRY, MATTHEW CALBRAITH.

1858. United States exploring expedition. During the years 1838–42 . . . Mammalogy and ornithology by John Cassin. *See* UNITED STATES EXPLORING EXPEDITION, 1838–42. *with folio atlas. Philadelphia.*

1858. Reports of explorations and surveys . . . for a railroad from the Mississippi River to the Pacific

← Casey, G. E. C. 1893. Natural history of the Riviera. cr. 8vo. 192 pp. Mice.

Ocean . . . Birds; by S. F. Baird. With the co-operation of John Cassin, &c. *See* U.S. PACIFIC RAILROAD SURVEYS.

1859. La Plata, Argentine Confederation, etc. Exploration by order of the U.S. Govt. under Thos. J. Page, U.S.N. *1 vol. 8vo.* *New York.*

1860. Birds of North America, by S. F. Baird . . . with the co-operation of J. Cassin, &c. *See* BAIRD, S. F., CASSIN, and LAWRENCE.

1862. Illustrations of the birds of California, Texas, Oregon, British and Russian America, and a general synopsis of North American Ornithology . . . 1853–55. *col. pl.* *Phila.*

1865. Illustrations of the birds of California, Texas, Oregon, British and Russian America. Intended to contain descriptions and figures of all North American birds not given by former American authors, and a general synopsis of North American ornithology. *4to. pp. viii+298. front. (col.). 49 pl. (col.). T. of c. index.* *Philadelphia.*

This issue seems identical with that of 1853–6 (q.v.), except that the present copy has guards to the plates, which apparently were removed from the copy of 1856.

CASSINIA. A Bird Annual. Proceedings of the Delaware Valley Ornithological Club of Philadelphia. Edited by Witmer Stone. *roy. 8vo.* Pictured, tinted wrappers. Illustrated. Wrapper. Sub-title: An Annual devoted to the Ornithology of Pennsylvania and New Jersey.
No. I, 1890–No. XXXII, 1930.
The first four numbers were published as [First Series] Proceedings of the Delaware Valley Ornithological Club (q.v.), 1890–1900, an abstract having been issued later by the Club: *Cassinia.*

This admirably edited and printed Year Book has high rank as a scientific periodical. Its contributors, including its able Editor, S. Witmer Stone, are well known as writers and scientific investigators.
Among them are: F. R. Cope, W. B. Evans, S. N. Rhoads, C. J. Peck, J. F. Street, J. D. Kuser, G. S. Morris *et al.*
Cassinia follows a rule (the observance of which might well be recommended to publishers of certain other periodicals) of printing on its wrappers the actual date of issue of each number.

CASSINO, SAMUEL EDSON.
1877–1930. The Naturalists' Directory, etc. *8vo.* *Salem.*

These useful lists have been irregularly issued for more than half a century.

CASTELL, A. VON. *See* HALLER, 1755.

CASTELLI, PIETRO [1575–1657].
1668. De Hyaena odorifera . . . Editio nova auctior. *12mo. pp. 79+5. 5 pl.* *Francofurti.*

The first edition is dated 1638 and the text is incorporated in part I of J. Johnstonus, *Historiae naturalis de Quadrupedis*, etc. The Blacker Library has also a copy bound with Horn, Georgius, *Arcamosis*, 1669.

CASTELNAU, FRANCIS L. DE LAPORTE, *comte de* [1812–80].
1843. Essai sur le système silurien de l'Amérique septentrionale. *folio. pp. 16+56. 27 pl.* *Paris.*

1850–9. Expédition dans les parties centrales de l'Amérique du Sud . . . pendant 1843 à 1847, etc. *14 vols. 8vo, 4to, and folio.* *Paris.*

This classic work treats of the natural history of South America, the text chiefly from the pen of Count de Castelnau, assisted by M. P. Gervais (mammalia); M. O. Des Murs (birds); and A. Guichenot (reptiles). It is one of the most valuable contributions of its kind in all zoological literature.

1855–7. Expédition dans les parties centrales de l'Amérique du Sud. Partie 7. Zoologie. *3 vols. 176 pl. (141 col.).* *Paris.*

A separate publication on the zoology of the famous expedition.

CASTI, GIAMBATTISTA.
1804. Gli Animali parlanti. Poema epice, etc. *4 vols.* *Amsterdam.*

One of the earliest editions of a famous poem on speaking animals.

1822. Gli animali parlanti. *12mo.* *London and Florence.*

CATALOGUE OF THE ASHMOLEAN MUSEUM. 1836. *See* ANONYMOUS.

CATALOGUE OF THE AUSTRALIAN BIRDS IN THE AUSTRALIAN MUSEUM. *See* RAMSAY, EDWARD PIERSON.

CATALOGUE OF THE BOOKS, MANUSCRIPTS, MAPS AND DRAWINGS IN THE BRITISH MUSEUM (NATURAL HISTORY). 1903–22. *See* BRITISH MUSEUM (NATURAL HISTORY).

CATALOGUE OF THE CASES OF BIRDS IN THE DYKE ROAD MUSEUM, BRIGHTON. 1901, 1927. *See* BOOTH, E. T.

CATALOGUE OF A COLLECTION OF FOSSILS. *See* AUSTRALIAN MUSEUM, 1883.

CATALOGUE OF SCIENTIFIC PAPERS, 1800–1900.
1867–1900. Pub. by the Royal Society. *17 vols.* Continued as the Internat. Cat. of Sc. Lit. (q.v.). *London.*

A monumental bibliography of scientific literature, of extreme value to librarians and advanced students.

CATANIA. Accademia Gioenia di scienze naturali.
1824–*date*. Atti, various eras.
1888–*date*. Bullettino delle sedute, 2 serie.

CAT COURIER. 1912–*date*. *Rochester, New York.*

CATESBY, MARK [1679?–1749].
1750. Piscivm, serpentvm, insectorvm, aliorvmqve nonnvllorvm animalivm . . . qvas Marcvs Catesby in posteriore parte splendidi illivs operis qvo Carolinae Floridae et Bahamensivm insvlarvm tradidit historiam natvralem, eivsqve appendice descripsit, additis vero imaginibvs piscivm, tam nostrativm qvam aliarvm regionvm; avxervnt vivisqve coloribvs pictas edidervnt Nicolavs Fridericvs Eisenberger et Georgivs Lichtensteger. *48½ cm. folio. pp. 102. 100 col. pl.* Latin and German in parallel cols. *Nuremberg.*

The first edition of this celebrated work appeared in 1731–43 as a French-English publication. Incomplete copies of the various printings are common enough but complete sets, with all the plates, are rare.

1754. The natural history of Carolina, Florida and the Bahama Islands. *2 vols.*

A rare printing not listed in the *Cat. Br. Mus. (Nat. Hist.).*

[**CATESBY,** M. (*contd.*)]

1771. (The) natural history of Carolina, Florida, and the Bahama Islands: containing the figures of birds, beasts, fishes, serpents, insects, and plants, etc. *2 vols. folio.* Vol. I, *pp.* (*2*)+*vii*+(*1*)+*xliv*+*100*+*2. front.* (*map col. fold.*). *100 pl.* (*col. fold.*). *T. of c. addend.* Vol. II, *pp.* (*2*)+*120*+(*6*)+*2. 120 pl.* (*col.*). *append. index.* *London.*

A revised 2nd (or 3rd?) edition of the first issue of 1731–43, edited by G. Edwards. In this edition the appendix is not separately paged. The birds are treated in vol. I, pp. 1–100, with 100 colored plates, and also in the appendix, vol. II, pp. 101–20, with nine colored plates. The text is in English and French in parallel columns. Each plate contains a typical colored plant of the district as well as a bird, both of which are briefly described in both languages.

1772–81. Verzameling van uitlandsche en zeldzaame Vogeln, &c. *See* EDWARDS, G.

A Dutch edition of the English-French printing edited by G. Edwards, in which the birds are described from the text of the *Natural History of Carolina, Florida,* etc.

1777. Piscium, serpentum, insectorum . . . imagines . . . Die Abbildungen verschiedener Fische, Schlangen, Insecten, einiger andern Thiere und Pflanzen, welche Herr Marcus Catesby . . . in seinem Werke der natürlichen Historie von Carolina und den Bahamischen Inseln beschrieben, in ihren natürlichen Farben vorgestellt von N. Fr. Eisenberger, G. Lichtensteger und W. Krorr. (Latein u. deutsch.) *122 S. Gr. folio. Mit 190 fein kolor. Tafeln.* *Nürnberg.*

A later Latin-German printing of the famous work.

1777. Supplementa. *pp. 4+10+8. 9 col. pl.* *Norimbergae.*

This is the supplement separately bound, but usually included in the Latin-German editions of *Natural History of Carolina, Florida,* etc.

CATHELIN, FERNAND [1873–].

1920. Les migrations des oiseaux. *8vo. pp.* [*2*]+*168. 11 figs. in text. T. of c.* *Paris.*

A scientific study of migration, giving among other topics the various theories of that important habit in birds.

1927. Quinze conférences sur l'oiseau, son rôle—sa protection. *12mo. pp.* (*4*)+*277. 1 fig. T. of c.* *Paris.*

Fifteen conversations on the natural history of birds, including a chapter on the general principles and laws of *oology.*

1928. Quinze Conférences sur l'Oiseau. *12mo. pp. 227.* *Paris.*

A second printing of the 1927 edition.

CAT JOURNAL. 1901–12. *Palmyra, Rochester, New York.*

CATLOW, MARIA E.

1852. Popular Scripture Zoology, containing a familiar history of the animals mentioned in the Bible. *8vo. pp. 16+360. 16 col. pl.* *London.*

1865. Scripture natural history; containing a familiar history of the animals mentioned in the Bible. *16mo. pp. xvi+360. front.* (*col.*). *15 pl.* (*col.*). *index.* *London.*

A work for young biblical students in the elucidation of the branch of Natural History of the Scriptures. The class Aves will be found on pp. 157–236 with six colored plates, depicting 16 species of birds mentioned in the Bible.

CATON, JOHN DEAN [1812–].

1877. The Antelope and Deer of America. *8vo. pp. 426. illust.* *New York.*

The first contribution on this subject by this author was made to the *Trans. Ottawa* (Canada) *Acad. of Nat. Sciences* in 1868. A second edition, with few changes, appeared in 1881.

CAT REVIEW. 1903–*date.* *Dayton, O.*

CAUB, JOHANN WONNECKE VON [CUBA, JOHANNES DE].

1511. Ortus Sanitatis: de Herbis et Plantis, de Animalibus et Reptilibus, de Avibus et Volatilibus, de Piscibus et Natatilibus, de Lapidibus et in Terre Venis nascentibus, de Urinis, de facile acquisibilibus, Tabula medicinalis cum Directorio generali per omnes Tractatus; black-letter, printed in double columns, with woodcut border on title and on rev. a full-page woodcut, and many hundred wood-engravings. *folio.*
Venetiis, per Bernardinum Benalium, etc.

'In 1485 was printed the first dated copy of the volume known as *Ortus* [or Hortus] *Sanitatis.* Though said by its author Johann Wonnecke von Caub (Latinized as Johannes de Cuba) to have been composed from a study of the collection formed by a certain nobleman who had travelled in Eastern Europe, Western China, and Egypt—possibly Breidenbach—it is really a medical treatise, and its zoological portion is mainly an abbreviation of the writings of Albertus Magnus, etc. The third *tractatus* deals with Birds, including among them Bats, Bees, and other flying creatures, *but as it is one of the first printed books in which figures of Birds are introduced* it merits notice, though most of the illustrations, which are rude woodcuts, fail to give any precise indication of the species intended to be represented.'—*Newton's Dictionary of Birds.*
See, also, CUBE.

1517. Ortus (Hortus) sanitatis. *4to* (not paged). *Strassburg.*

The above is one of numerous editions, published in several languages, of a celebrated herbal. In the copy in hand (from Dean Adams' Library) sig. Q iv begins with a *Prologus* in *de Avibus. Capitulum I,* and ends with *Pisces, Cap. XXII,* displaying more than 100 woodcuts of birds. In other words, 122 chapters are devoted to birds of the world, as known to fifteenth-century writers. This *Gart* (*Garten*) *der Gesundheit* was among the first of the German incunabula devoted to natural history.

CAULIACO, GUIDO DE (GUY DE CHAULIAC).

1559. Chirurgia, nunc iterum . . . purgata. *pp. 560.* *Lugduni.*

This celebrated medieval surgeon not infrequently described animal life in his works, and especially in his famous treatise on Surgery. The Osler Library has most of his publications.

1585. Chirurgia. *2 vols. in 1.*

One of the many editions of this celebrated medieval work on surgery, that contains a few references to animals.

CAWSTON, EDWIN.

(*ca.* **1888**). Ostrich Farming in California. *8vo.* *Pasadena, California.*

An account of one of the first ostrich farms in North America.

CAYLEY, NEVILLE W.

1920. Our birds. *4to. 7 pl. T. of c.* (Australian bird series. 1st ed., no. 1.) *Sydney.*

Seven charming colored groups of Australian birds, with brief descriptive text, by a well-known artist whose autograph appears on the cover.

CAZWINI, ZAKARIYA (13th century).

1912. Aja'iba'l-makhluqat. Cosmography and natural science. *large 4to. lithograph. pp. 606. col. illust.* A Hindustani translation from the original Persian. *Lucknow.*

CECIL, M. W. (*Lady* WILLIAM).

1904. Bird notes from the Nile. *8vo.* *London.*

CEDERHIELM, JOHANN.

1798. Faunae Ingricae Prodromus . . . praemissa Mammalium, Avium, Amphibiorum et Piscium enumeratione. *8vo. pp. 18+348. 3 col. pl.* *Lipsiae.*

✓ Oct 21. 31. Bought for N.S.W. Lib. 4 examples of Cayley's Original drawings from Miss Knobel. Aircult. Soc.

See Original drawings

← 1931. What bird is that? A guide to the birds of Australia. Sydney.

→ Centralblatt f. Allgemeine u. experimentelle Biologie. 1910-11.

~~Darwin~~

→ 1895. Articles re the Challenger Exped. from Natural Science and newspaper cuttings. 8vo.

→ 1859. Ceylon. An account of the Island, &c. Third Edition. 2 vols. pp. 643 + 663. Ill. London. ✠ Charles Darwin's own copy with notes in his handwriting. Pedigree: C. D., Sir Francis Darwin (son): Frances Darwin, the Poet, granddaughter: John Still: Capt. W. W. A. Phillips: Casey A. Wood. For the E. S. L. Library. Note: The first three editions were all issued in 1859 - [60].

→ Chadwick, W. D. 1931. Hunters and the hunted. Some glimpses of man and beast in the African bush. 8vo. 223 p.

CENSUS OF FIFTEENTH CENTURY BOOKS OWNED IN AMERICA. *See* BIBLIOGRAPHICAL SOCIETY OF AMERICA, 1919. *New York.*

CENTRAL ASIATIC EXPEDITIONS OF THE AMERICAN MUSEUM OF NATURAL HISTORY.

1927. Natural history of Central Asia. *4to. illust. pl. maps.* *New York.*

CENTRALBLATT FÜR NATURWIS. UND ANTHROPOLOGIE.

1853–4. 1 and 2 Jg. (all pub.).

CERCLE ZOOLOGIQUE CONGOLAIS. *See* REVUE ZOOLOGIQUE AFRICAINE.

CERESA, GUISEPPE DE.

1830–40. Storia naturale generale dei colibri degli uccelli mosca, delle galbule e dei promeropi di J. B. Audebert e L. P. Vieillot. *See* AUDEBERT, J. B.

ČEŠKA AKADEMIE VÉD A UMĚNÍ V PRAZE.

1891–*date.* Almanach.

1895–*date.* Bulletin International.

1891–*date.* Palaeontographica Bohemiae.

CETTI, FRANCESCO [1726–78].

1774. I Quadrupedi di Sardegna. *8vo. pp. 24+220. text-figs. 3 pl. 1 map.* *Sassari.*

A scientific and early contribution to south European island fauna. The author's name does not appear on the title-page, and there is an important appendix of 63 pages that is often published separately and with no date. This volume is the first of a series of monographs on the vertebrate zoology of Sardinia.

1776. Gli uccelli di Sardegna. *12mo. pp. 334. 12 cop. pl.* *Sassari.*

The author divides this little work, intended for popular consumption, into Land birds and Water birds. Vol. 2 of his monograph series.

1777. Anfibi e pesci di Sardegna. *20 cm. 1 p. l. pp. 208+[8]. 5 pl. (1 fold.).* Binder's title reads vol. 3 of his works. *Sassari.*

1783–4. Naturgeschichte von Sardinien, I–II. *2 vols.* *Leipzig.*

This is a German translation of the well-known Italian original—3 volumes on the vertebrates of Sardinia.

CEYLON BRANCH OF ROYAL ASIATIC SOCIETY OF GREAT BRITAIN AND IRELAND. *See* ROYAL ASIATIC SOCIETY . . . CEYLON BRANCH.

CEYLON JOURNAL OF SCIENCE.

1903–*date.* B. Zoology and Geology. Spolia Zeylanica.

1922–*date.* C. Fisheries. Bulletin of Ceylon Fisheries.

CEYLON MARINE BIOLOGICAL LABORATORY. *Colombo.*

1904–12. Reports.

CHABANAUD, PAUL. *See* BABAULT, GUY, 1920–4

CHAINE, JOSEPH.

1922. Anatomie comparative. *8vo. pp. 8+276.* *Paris.*

CHALLENGER SOCIETY. (Founded 1903.)

1909. Scientific and Biological Researches in the North Atlantic . . . conducted by R. N. Wolfenden. *4to. pp. 7+234. 7 pl. 1 col. map.* (Wanting.) *London.*

This particular issue of a very useful society contains a report on Fishes (collected during a cruise in 1907) by E. W. L. Holt and L. W. Byrne.

1912. Science of the sea. An elementary handbook of practical oceanography for travellers, sailors, and yachtsmen, prepared by the Challenger society for the promotion of the study of oceanography. Ed. by G. Herbert Fowler. *pp. xviii+452. illust. 8 charts (part fold.).* *London.*

1928. Science of the sea. 2nd ed., ed. by E. J. Allen. *8vo. pp. 24+502. illust. portr. maps.* *Oxford.*

CHALLENGER, Voyage of H.M.S.

1878. *See* WILD, J. J.

1880–95. Scientific Results. *40 vols.*

The reports on the zoological results of this extremely important and famous scientific expedition are commented on under various captions in this *Catalogue*. A full account of the vertebrate zoology will also be found in the *Br. Mus. Cat.* (*Nat. Hist.*), p. 716.

1881–2. Report on the scientific results of the voyage of H.M.S. Challenger, during the years 1873–76; . . . prepared under the superintendence of . . . Sir C. W. Thomson, and of John Murray . . . Zoology—vols. II and IV. *See* THOMSON, A. W. and MURRAY, *Sir* J.

1897. Portraits of the Contributors, etc. *4to.* *London.*

CHAMBERLAIN, MONTAGUE [1844–1915].

1882. A catalogue of the birds of New Brunswick, with brief notes relating to their migrations, breeding, relative abundance, etc. *8vo. pp. 25–68+(24 blank leaves).* *Saint John.*

Reprinted from the Natural History Society of New Brunswick, Bulletin No. 1, with the addition of a title-page, but without alteration of pagination. The present annotated Catalogue is divided into two Sections; the first embracing the result of observations made in the Counties of Saint John and King's; the second containing the names of species which have not been found within that area, but which have been observed elsewhere in the Province. Of the Northern and Central Sections very little systematic investigation has been made, so that for the present the catalogue—as the author states—forms really only a starting-point. Altogether 269 species are so far recorded.

1887. A catalogue of Canadian birds, with notes on the distribution of the species. *8vo. pp. v+(3)+143. append. index.* *Saint John, N.B.*

An annotated list of species, with scientific and common names, and their known distribution in Canada. The Appendix gives alterations in the nomenclature of North American birds, as well as additions to the avifauna since the list was issued.

1888. A systematic table of Canadian birds. *folio. pp. (4)+i–iii+(1)+14. 2 append.* *Saint John, N.B.*

The species of the Table are identical with those of the Catalogue of 1887, excepting a few additions and eliminations which will be found noted in the Appendices. The species are arranged in tabular form without annotations of any kind except in the appendices.

1891. The birds of Greenland. By A. T. Hagerup. Ed. . . . by M. Chamberlain. *See* HAGERUP, A. T.

1891. A popular handbook of the ornithology of the United States and Canada. *See* NUTTALL, THOMAS.

1894. A popular handbook of the ornithology of eastern North America. *See* NUTTALL, THOMAS.

1903. A popular handbook of the birds of Canada and the United States. *See* NUTTALL, THOMAS.

CHAMBERLAIN, WALTER.

1888. Notes on Non-Volant Birds. *8vo.* *Cupar, Scotland.*

CHANCE, EDGAR.

1922. The cuckoo's secret. *8vo. pp. xiv+239. front. 9 pl. 2 plans fold. T. of c. append. London.*

A record of four seasons' detailed observations on what Chance considers to be the same female Cuckoo. In 1920 probably every egg laid by this cuckoo was located, the author from previous experience being actually able to indicate the date and hour at which each egg was laid. Films were obtained of the actual laying, upon which he bases his assumption that the cuckoo does not first lay her egg elsewhere and then transport it in her beak, or regurgitate it into the nest of her victim, but actually lays it in the nest of her dupe. However, others still differ, notably Mr. Stuart Baker, whose paper on this subject (*Bull. Brit. Ornith. Club*, March 13, 1922) should be read in conjunction with the present work.

CHANDLER, LESLIE G.

n.d. Bush charms; with an introduction by Charles Barrett. Illust. photos. by the author. *12mo. pp. (2)+114+(2). front. 26 pl. 3 figs. T. of c. index.* *Melbourne.*

References to birds are numerous and occur throughout the volume, over one-half of the illustrations being devoted to depicting them and their nests.

CHANG HUA 張華 [A.D. 232–300].

1592. Po wu chih 博物志; A compilation of short articles on strange animals, birds, insects, fishes, etc. (In Han wei ts'ung shu 漢魏叢書 work 63, ts'ê 68.) *24×15·7 cm.*

One of several works on general zoology from the Gest Library.

CHANG T'ING-YÜ 張廷玉 [1672–1755] and **others.**

1722. Fên lei tzû chin 分類字錦; A classified dictionary of words and phrases on all kinds of animals, birds, fishes, etc., chüan 55–60. *27×17 cm.*

Another classic on zoology from the Gest Library.

1727. Tzû shih ching hua 子史精華; Selected extracts from outstanding historical and philosophical works on 30 different subjects, with material for a work on animals, birds, fishes, etc., chüan 135–9. *24·7×16·2 cm.*

An important source of zoological literature from the Gest Chinese Library.

CHANTER, JOHN FREDERICK.

1907. A history of the parishes of Lynton and Countisbury. *pp. (6)+7–192. front. 7 pl. 1 fig. 7 pedigrees (3 fold.). T. of c. append. index.* *Exeter.*

The natural history occupies pp. 126–56, the account of the birds pp. 126–33, the list consisting of about 107 species.

CHANTER, JOHN ROBERTS [1865–1900].

[**1877**]. Lundy Island: . . . features in natural history. *8vo. pp. (2)+171. front. 5 pl. 1 fig. 1 map (fold.). T. of c. append.* *London.*

An account of the birds is on pp. 132–40; the appendix also, pp. 153–7, contains a full list of those found on the island at various seasons of the year.

CHAO PIAO-CHAO 趙彪詔 (18th cent.).

1834. T'an hu 談虎; A discourse on the tiger. *pp. 39.* (In Chao tai ts'ung shu 昭代叢書戊集 chüan 50.) *24·3×15·5 cm.*

CHAPIN, JAMES P.

1923. The preparation of birds for study. Instructions for the proper preparation of bird skins and skeletons for study and future mounting. *8vo. pp. 45. 25 figs.* *New York.*

This leaflet is one of a series (No. 58) intended to furnish accurate information in regard to the preparation of specimens of various kinds for Museum purposes.

CHAPMAN, ABEL [1851–1925].

1889. Bird-life of the borders, records of wild sport and natural history on moorlands and sea. *8vo. pp. xii+286. 15 pl. 39 figs. 1 diagr. T. of c. index.* *London.*

A popular account of experiences and observations of a sportsman naturalist on the moors and north-east coast of England. A second, enlarged edition, was issued in 1907.

******** and **BUCK,** WALTER J.

1893. Wild Spain: records of natural history. *8vo. pp. 20+472. 51 pl. map. illust. in text.* *London.*

A semi-popular account of the vertebrates commonly found in the Iberian peninsula.

1896. First Lessons in the Art of Wild-fowling. *8vo.* *London.*

1897. Wild Norway, with Chapters on Spitzbergen, etc. *8vo. pp. 13+358. 16 pl. text-figs.* *London.*

1907. Bird-life of the borders on moorland and sea, with faunal notes extending over forty years. *8vo. pp. xii+458. front. 54 pl. 30 figs. T. of c. index.* *London.*

A second edition of the 1889 issue. The book is divided into two sections; the first relating to the Cheviots and moorlands of the Border has been practically rewritten.

1908. On safari; big game hunting in British East Africa, with studies of bird life. *London.*

******** and **BUCK,** WALTER J.

1910. Unexplored Spain. *8vo. pp. xvi+416. front. 31 pl. 148 figs. T. of c. append. index.* *London.*

This work is a sequel to the authors' *Wild Spain*, 1893.

1928. Retrospect; reminiscences and impressions of a hunter-naturalist in three continents, 1851–1928. Illust. by Joseph Crawhall, W. H. Riddell (20 in colour), and the author. *8vo. pp. xix+(1)+353. front. (col.). 53 pl. (19 col.). 138 figs. T. of c. 3 append. index.* *London.*

CHAPMAN, FRANK MICHLER [1864–].

1889. A revision of the genus xiphorhynchus Swainson, with descriptions of two new species. Extracted from *Bull. Am. Mus. Nat. Hist.*, vol. II, no. 3. Author's edition issued July 5, 1889. *8vo. pp. 153–62.* [*New York.*]

A revision of this difficult group, the author being governed solely by the material before him in arriving at the conclusions presented. The material consisted of the Lafresnaye Collection, including Lafresnaye's types, the U.S. National Museum Collection, and the Lawrence, Maximilian, and Verreaux Collections.

1890. On a collection of birds made by Clark P. Streator in British Columbia, with field notes by the collector. Extracted from *Bull. Am. Mus. Nat. Hist.*, vol. III, no. 1. Author's edition issued October 8, 1890. *8vo. pp. 123–58.* [*New York.*]

A detailed description of the species (160) collected will be found on pp. 129–58.

← Champaine, L.E. 1889. L'art d'elever et d'instruire les oiseaux. Oiseaux chanteurs, oiseaux parleurs, oiseaux de volière. Paris.

Chapman, Abel. 1930. Memories of four-score years less two, 1851-1930. With a memoir by George Bolam. Illus, 24 col pl, numerous text drawings by the Author.
Octavo, cloth, 257 pp London.

→ Changran. M. de. 1780. Manuel du Chasseur, ou traité complet et portatif de la venerie, de fauconnerie, et ~~de Sangrain & Lamy. 1780. in 8°~~ /elle. orig.

1891. On the color-pattern of the upper tail-coverts in colaptes auratus.—On the birds observed near Corpus Christi, Texas, during parts of March and April, 1891. Extracted from *Bull. Am. Mus. Nat. Hist.*, vol. III, no. 2. Author's edition issued August 27, 1891. *8vo. pp. 311–28. 1 pl. (15 figs.).* [*New York.*]

1892. A preliminary study of the grackles of the subgenus quiscalus. Extracted from *Bull. Am. Mus. Nat. Hist.*, vol. IV, no. 1. Author's edition issued February 25, 1892. *8vo. pp. 20. 1 map (fold.).* [*New York.*]

1892. Notes on birds and mammals observed near Trinidad, Cuba, with remarks on the origin of West Indian bird-life. Author's edition, extracted from *Bull. Am. Mus. Nat. Hist.*, vol. IV, no. 1, article XVI, pp. 279–330. New York, December 29, 1892. *pp. 279–330. 3 figs.* *New York.*

This paper is divided as follows: (1) Notes on Cuban birds, pp. 282–313, annotated list consisting of 99 species observed; (2) Notes on Mammals observed, pp. 313–17; (3) Remarks on the Origin of West Indian Bird-life, pp. 318–30. The total number of Cuban species recorded is 257, of which 156 are land-birds and 101 water-birds.

1894. On the birds of the Island of Trinidad. *Bull. Amer. Mus. Nat. Hist.*, vol. VI, article I. *8vo. pp. 86.* *New York.*

Author's edition. The first few pages give a description of the Island, followed by 'Migrations', 'Call Notes and Song', 'Nesting', and 'The color of tropical birds', with a freely annotated list of 306 species, with their local names in English and French.

1898. Notes on birds observed at Jalapa and Las Vigas, Vera Cruz, Mexico. Author's edition, extracted from *Bull. Amer. Mus. Nat. Hist.*, vol. X, article II, pp. 15–43. *8vo. pp. (30). 1 pl.* *New York.*

1898. Bird-life; a guide to the study of our common birds. Illust. by Ernest Seton Thompson . . . with seventy-five full-page plates in colors. *8vo. pp. xvi+195. front. (col.). 74 pl. (col.). 24 figs. 1 diagr. T. of c. index.* *New York.*

A popular account of the commoner birds of eastern North America, prefaced by a general discussion of the bird's place in nature, its relation to man, its economic value, etc. The first edition was issued in 1897.

1899. Descriptions of five apparently new birds from Venezuela. Author's edition, extracted from *Bull. Amer. Mus. Nat. Hist.*, vol. XII. *8vo. pp. 153–6.* *New York.*

Five apparently new birds are described.

1899. Report on birds received through the Peary expeditions to Greenland. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XII. *8vo. pp. 219–44. 8 figs.* *New York.*

An annotated list of 48 species of birds obtained on these expeditions, particularly series of young birds of Uria and Rissa, and of adults—especially of *Somateria* and *Falco.*

1900. A study of the genus Sturnella. Author's edition, extracted from *Bull. Amer. Mus. Nat. Hist.*, vol. XIII. *8vo. pp. 297–320. 8 figs.* *New York.*

A study of 734 skins of *Sturnella magna* and *S. neglecta* from various localities, from which the author advances the theory of descent from a common ancestor.

1900. Bird studies with a camera; with introductory chapters on the outfit and methods of the bird photographer. *8vo. pp. xiv+218. front. 9 pl. 113 figs. T. of c. index.* *New York.*

Another edition of this charming work was issued in 1914.

1901. A new race of the great blue heron, with remarks on the status and range of 'Ardea wardi'. Author's edition from *Bull. Amer. Mus. Nat. Hist.*, vol. XIV. *8vo. pp. 87–90.* *New York.*

This new race, *Ardea herodias fannini*, was named after John Fannin, in recognition of his services to the zoology of the region it inhabits, the north-west coast region, from at least Victoria northward.

1902. Handbook of birds of eastern North America. With Keys to the species and descriptions of their plumages, nests, and eggs, etc. *New York.*

A condensed scientific manual of the birds of eastern North America with as few technicalities as possible. Appendix 1 is a field key to the commoner eastern land birds. Appendix 2 gives changes in nomenclature and addition of certain birds to the list to date. The first edition was issued in 1895, with another printing of the present one in 1904, and a revised edition in 1927.

1902. List of birds collected in Alaska by the Andrew J. Stone expedition of 1901. Author's edition from *Bull. Amer. Mus. Nat. Hist.*, vol. XVI. *8vo. pp. 231–47.* *New York.*

An annotated list of the 68 species and subspecies.

****** and REED, C. A.**

1903. Color Key to North American Birds. *8vo.* *N.Y.*

For fuller description of this useful Key, see edition of 1912.

1904. Birds' Nests and Eggs. *Amer. Mus. Nat. Hist.* Guide leaf. No. 14. Author's reprint.

1904. Handbook of birds of eastern North America. 6th ed. *12mo. pp. xiv+431. front. (col.). 1 pl. (color chart). 18 pl. 116 figs. (one on inside cover). T. of c. 2 append. bibliog. index.* *New York.*

A further revised edition was issued in 1927.

1904. List of birds collected in Alaska by the Andrew J. Stone expedition of 1903. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XX, pp. 399–406. *8vo. pp. [8].* *New York.*

An annotated list of 62 species based on a collection of 317 birds and 35 sets of eggs.

1904. A new grouse from California. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XX, pp. 159–62. *8vo. pp. [4].* *New York.*

A detailed description of the Sierra Grouse (*Dendragapus obscurus sierrae, subsp. nov.*).

1905. A contribution to the life history of the American flamingo (Phoenicopterus ruber). Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XXI, pp. 53–77. *8vo. 16 figs.* *New York.*

Accompanying the account are 16 illustrations depicting the home-life of these birds.

1908. Camps and cruises of an ornithologist; with 250 photographs from nature by the author. *8vo. pp. xvi+432. front. (col.). 1 pl. (col.). 1 map. 259 figs. T. of c. index.* *New York.*

A popular account of the author's experiences in search of material for the 'habitat groups' of birds in the American Museum of Natural History, New York City.

1909. Bird-life, a guide to the study of our common birds. *8vo. pp. xii+195+(1)+v+(1)+88. front. (col.). 75 col. pl. (1 of eggs). 24 figs. 1 diagr. T. of c. append. index.* *New York.*

A popular account of the commoner birds of eastern North America, prefaced by a general discussion of the bird's place in nature, its relation to man, and economic value, etc. The drawings for the colored plates were made by Ernest Seton-Thompson. The Appendix, pp. i–vi+88, is intended entirely for teachers. The first edition was issued in 1897 without the Appendix.

[**CHAPMAN**, F. M. (*contd.*)]

1912. Color key to North American birds, with bibliographical appendix; with upward of 800 drawings, by Chester A. Reed. Rev. ed. *8vo. pp. x+356. front. (diagr.). 729 figs. (col.). 156 figs. in text. T. of c. append. bibliogr. index. New York.*

A work designed to enable the beginner easily to identify the birds he meets with in the field, by means of colored figures, structural details, and Keys to the species, which are arranged primarily according to colors. The first edition was issued in 1903.

1912. Handbook of birds of eastern North America. *New York and London.*

One of several printings.

1912. A new ibis from Mt. Kenia, British East Africa. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XXXI, pp. 235–8. *8vo. pp. (4). 2 pl. New York.*

1912–15. Diagnoses of apparently new Colombian birds. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XXXI, pp. 139–66 [and] vol. XXXIII, pp. 167–92. *2 vols. 8vo.* Vol. I, *pp. (28). 1 map.* Vol. II, *pp. (26). 1 map (fold.). New York.*

Diagnoses of apparently 68 new and subspecies based principally on collections made in the Cauca valley in 1910–11, and in the Magdalena Valley across the Eastern Andes through Bogota to Villavicencio, at their eastern base, in 1913. About 7,358 specimens were obtained.

1914. Descriptions of a new genus and species of birds from Venezuela. Author's edition, *Bull. Amer. Mus. Nat. Hist.*, vol. XXXIII, pp. 193–7. *8vo. 1 fig. New York.*

These descriptions are of birds from the base of Mt. Duida on the Orinoco river, and Cristobal Colon. Four new species are described.

[**1916**]. The travels of birds; our birds and their journeys to strange lands. *8vo. pp. (12)+160. front. 17 figs. 5 maps. T. of c. index. New York.*

A text-book on avian migration for nature study classes in schools.

1916. The habitat groups of North American birds in the American Museum of Natural History. Guide leaflet series No. 28, 2nd ed., revised and enlarged. *8vo. pp. 64. front. (col.). 34 figs. 1 map. New York.*

These beautiful groups of birds are designed to illustrate not only the habits but the haunts or 'habitats' of the species shown. Each group usually includes the nest, eggs, and young, besides the adult bird or birds, with a reproduction of from 60 to 160 square feet of the nest's immediate surroundings. The text opposite each illustration describes the birds in the group, their habits, etc., and where the studies for the picture were made.

****** and others.**

1917. The warblers of North America. With twenty-four full-page plates, illustrating every species, from drawings by Louis Agassiz Fuertes and Bruce Horsfall, and half-tones of nests and eggs. 3rd ed. *8vo. pp. (6)+v–ix+(1)+306. front. (col. 6 figs.). 23 pl. (col. 118 figs.). 8 pl. (8 figs., nests; 126 figs, eggs). T. of c. index. New York.*

A monograph of the life-histories of the 74 species and subspecies of North American Wood Warblers, most of it originally published in *Bird-Lore*. Following a chapter on migration by W. W. Cooke, and one on the food of warblers by E. H. Forbush, comes the main body of the work taken up with detailed accounts of each species.

1917. The distribution of bird-life in Colombia; a contribution to a biological survey of South America. *8vo. pp. x+729. front. (map fold.). 6 pl. (col. 2 maps). 34 pl. (2 maps, 1 fold.). 21 figs. (maps). T. of c. append. bibliogr. index. New York.*

The most important contribution ever made to the subject, with its discussions not only of the relationship of the birds but of the varied characters of the country they inhabit, its forests, rainfall, and other conditions, etc. The systematic report is based upon a collection of skins made by the author and his assistants numbering 15,775, which represent 1,285 species and subspecies, of which 22 were new species, and 115 new subspecies. The work is replete with maps and distributional charts, also with four colored plates of birds from paintings by Louis Agassiz Fuertes who accompanied Dr. Chapman on the two expeditions, together with W. B. Richardson, Leo E. Miller, Arthur A. Allen, Geo. K. Cherrie, Paul G. Howes, Geoffroy O'Connell, Thos. M. King, and Howarth Boyle, all of whom materially contributed to the success of the undertaking.

1918. Our winter birds, how to know and how to attract them. Illustrations by Ernest Thompson Seton and Edmund J. Sawyer. *8vo. pp. x+180. front. 2 pl. (col.). 7 pl. 56 figs. T. of c. index. New York.*

A popular account of the winter birds of eastern North America.

1920. What bird is that? A pocket museum of the land birds of the eastern United States, arranged according to season. With 301 birds in color by Edmund J. Sawyer. *8vo. pp. xxvi+144. front. (diagr.). 8 pl. (col.). 8 figs. T. of c. index. New York.*

A popular guide to eastern land-birds with a short account of the species treated. The colored plates contain 424 small figures of birds, arranged as Residents, Winter Visitants, Spring Migrants, etc.

1921. The distribution of bird life in the Urubamba Valley of Peru. *8vo. pp. 138. front. (map fold.). 8 pl. 3 figs. (2 maps). T. of c. index. Washington.*

A report on the birds collected by the Yale University–National Geographic Society's Expeditions, accompanied by a distributional list of 380 species and subspecies. (Smithsonian Institution, U.S. Nat. Mus., Bulletin 117. Author's separate.)

1923. Warblers of North America. *8vo. N.Y.*

An *editio altera* of a well-known monograph.

1926. Bird Life; a guide to the study of our common birds. *New York.*

1927. Handbook of birds of eastern North America, with introductory chapters on the study of birds in nature. With full-page plates in colors and black and white by Louis Agassiz Fuertes, and text-cuts by Tappan Adney and Ernest Thompson Seton. Rev. ed. *8vo. pp. xxix+(1)+530. front. (col.). 23 pl. (col.). 136 figs. 1 map (fold. col.). T. of c. index. New York.*

The added material of this edition is in the introductory 116 pages, as compared with 31 in the original edition. The chapters on migration, song, nesting habits, color, structure and function, food, etc., have been thoroughly revised and brought up to date. The nomenclature is that of the 1910 edition of the A.O.U. Check-List. The first edition was issued in 1895, with several subsequent printings.

1929. My tropical air castle; nature studies in Panama. Illust. with drawings by Francis L. Jaques and from photographs by the author. *8vo. pp. xv+(1)+417. front. 46 pl. 30 figs. (1 map). T. of c. append. index. New York.*

This interesting account of the artificial island-sanctuary of Barro Colorado (diameter three miles) in the Panama Canal Zone records the presence of 230 bird species and examples of almost all the mammals of Central America except the jaguar. It truly is a naturalist's paradise, set aside by the Governor of the Zone and placed in charge of the U.S. Institute for Research in Tropical America, a branch of the National Research Council.

n.d. The Birds of the Vicinity of New York City. *N.Y.*

CHAPPIUS, P. A.

1927. Die Tierwelt der unterirdischen Gewässer. *8vo. pp. 4+175. illust. pl.* (Die Binnengewässer, vol. 3.) Bibliography, pp. 158–66. *Stuttgart.*

A useful, scientific monograph on animal life in subterranean waters.

→? (Chapman J. Hy.) 1933 Autobiography of a Bird Lover. ~~1933~~.

→ (Chapman. F M.) 1932. Handbook of Birds of Eastern North America. rev. ed. pp. 581.

⇒ Chapman, R. N. Animal Ecology. 1931. N. Y. & London.

CHARAS, Moyse (Moïse) [1618–98].

1670. Nouvelles expériences sur la Vipère, ou l'on verra une description exacte de toutes ses parties. *8vo. illust.* *Paris.*

The third edition (very rare) of the anatomy, etc., of the common viper.

CHARCOT, Jean Baptiste Étienne Auguste [1867–].

1906–24. Expédition antarctique française (1903–5). *8vo. pp. 37+486. 25 pl. 5 maps. text illust.* *Paris.*

The animal life of this the first scientific voyage on the 'Français' to the South Pole, under the supervision of Charcot, is described (in the Appendix) by J. Turquet.

1911–24. Deuxième Expédition antarctique Française (1908–10) (all pub.). *28 vols. 4to. many illust.* *Paris.*

This (second) expedition, under the scientific charge of Dr. Charcot was undertaken in the 'Pourquoi-Pas?'. The oceanographic results were published in *Documents scientifiques* that, so far, have filled 28 vols. The elaborate accounts furnished concern mostly invertebrate life, but antarctic birds are described by Louis Gain and the fishes by Louis Roule and others.

CHARDIN, Jean [1643–1713].

1927. Sir John Chardin's Travels in Persia, with an introduction by Sir Percy Sykes. *4to. pp. xxx+287+(2). 6 pl. (2 fold.). 4 figs. (1 col. vignette).* *T. of c.* *London.*

A reprint of the practically unknown two-volume English edition of 1720. The portion relating to the tame and wild birds will be found in chapter IX, pp. 174–82. Other editions appeared in 1721, 1724, 1735, and 1811. The present edition was limited to 975 copies on Japon Vellum, of which this copy is No. 448. The vignette on the title-page is from an old Persian tile.

CHARLESTON MUSEUM, CHARLESTON, S.C.

1905–22. Bulletin.

1923–*date*. Quarterly.

1910–*date*. Contributions.

CHARLES R. CONNER MUSEUM, PULLMAN, WASH.

1928. Occasional Papers, No. I.

CHARLESWORTH, Edward [1813–93].

1839–40. Natural-History Illustrations, etc.

CHARLETON, Walter [1619–1707].

1668. Onomasticon Zoicon, plerorumque Animalium, etc. *4to. pp. 18+309+34. 7 pl. text illust.* *London.*

This is the first edition of an important and celebrated classic which not only treats of living animals but contains discourses on their anatomy and paleontology. Several editions are also in the Osler and Dean Adams libraries.
In the present volume there is a type illustration of the Cretan Bee-eater, *Merops apiaster*, facing p. 87. The term bee-eater is here used for the first time in ornithological literature (cf. Newton, *Dict. Birds*).
Charleton was an Oxford graduate, physician to Charles I. He was an erudite scholar, widely read in the literature of natural history. His *Onomasticon* is largely a compilation from contemporary and earlier writers.

1671. Onomasticon zoicon, continens plerorumque animalium quadrupedum, serpentium, insectorum, avium & piscium differentias, eorumque nomina propria diversis linguis exposita; sui accedunt mantissa anatomica et nonnulla de variis fossilium generibus. *4to. pp. 18+309+34. 7 pl. text-figs.* *Londini.*

This is a reissue of the edition of 1668, with a new title-page and the first sheet reset.

1677. Gualteri Charletoni exercitationes de differentiis & nominibus animalium. Quibus accedunt mantissa anatomica, et quædam de variis fossilium generibus, deque differentiis & nominibus colorum. Ed. 2, duplo fere auctior priori, novisque iconibus ornata. *3 vols. (in 1). pp. 10+119; 106; 78+19. illust. 2 pl.* *Oxoniae.*

The frontispiece is an engraving of the Alchata or Pin-tailed Sand-grouse; the central tail-feathers are shortened to accommodate the figure to the plate. The *Mantissa anatomica* includes observations on the anatomy of the 'Fishing Frog' (*Lophius piscatorius*), the Dog-fish, and the true Frog, with illustrations in the text.
This early and famous treatise is an enlarged (second) edition. Eight copper plates (three folding) of birds include many avian species of world distribution, e.g. British Song Birds, the Ibis, Crossbill, Hoopoe, etc. The frontispiece shows the Sheldonian Theatre in Oxford and pp. 64–119 (vol. I) describe the birds. There is also a copy in the Dean Adams Library.

CHARLEVOIX, Pierre François Xavier de [1682–1761].

1744. Histoire et Description générale de la Nouvelle France, etc. *3 vols. 4to.* *Paris.*

Including an account of some New World animals.

CHARNLEY, J. R.

1920. Hints on preserving and mounting birds. *12mo. pp. 39. front. (diagr.). T. of c.* *London.*

This little handbook has been designed as a guide for the amateur bird collector.

CHASEN, F. N. *See* Bucknill, J. A. S., 1927.

CHATHAM, John H.

1919. The passenger pigeon in Pennsylvania, &c., by John C. French . . . with chapters by . . . J. H. Chatham. *See* French, J. C.

CHAULIAC, Guy de.

1585. Chirurgia magna, etc. *See also* Caulico, Guido de.

CHAUTAUQUA SOCIETY OF HISTORY AND NATURAL SCIENCE.

Jamestown, N.Y.

1883–*date*. Proceedings.

CHECK-LIST OF NORTH AMERICAN BIRDS.

1895. 2nd ed. Published by the American Ornithologists' Union. *Washington.*

These authoritative Lists are published from time to time as the official catalogue of North American birds. *See* Amer. Ornithologists' Union.

CHEMNITZ. Naturwissenschaft. Gesellschaft zu Chemnitz.

1859–1930. Berichte und Abhandlungen.

CHENEY, Simeon Pease [1818–90]. (Cheney, John Vance, *ed.*)

[**1891**]. Wood notes wild, notations of bird music; collected and arranged with appendix, notes, bibliography, and general index by J. V. Cheney. *8vo. pp. xiv+261. front. (portr.). T. of c. append. bibliogr. index.* *Boston.*

This posthumous collection of New England bird-songs was begun when the author was in his sixty-seventh year, and was left unfinished when he died in 1890. It was completed and published by his son. The intention was to write a book of bird-songs for the young people of New England, many of whom he had taught the rudiments of vocal music. A second printing appeared in 1892.

CH'ÊN FANG-SHÊNG 陳芳生 [1644–1911].

1834. Pu huang k'ao 捕蝗考; History and prevention of the plague of locusts. *pp. 17.* (In Chao tai ts'ung shu 昭代叢書丙集, chüan 40.) *24·3 × 15·5 cm.*

From the Gest Library of Chinese Literature.

CHÊNG CH'IAO 鄭樵 [1108–66].

1896. T'ung chih 通志; A history, including material on all kinds of animals, fishes, insects, etc., chüan 76. *24 × 15·2 cm.*

From the Gest Library.

CH'ÊN HSI 陳僖 (18th cent.).

1834. Shih wu 識物; Notes on the peacocks, bats, beetles, snails, moths, mosquitoes, etc. *pp. 9.* (In Chao tai ts'ung shu 昭代叢書丁集, chüan 50.) *24·3 × 15·5 cm.* [G.]

CHÊNG JO-YUNG 鄭若庸 (16th cent.).

1576. Lei chien 類雋; An encyclopedia of 20 main divisions, comprising material on animals, birds, insects, fishes, etc., chüan 29–30. *29·5 × 18·3 cm.* Gest Library.

CH'ÊN JÊN-HSI 陳仁錫 [1579–1636].

1621–8. Ch'ien ch'io lei shu 潛確類書; A classfied encyclopedia, containing information on all kinds of animals, birds, fishes, worms, insects, etc., chüan 104–20. *25·8 × 16·5 cm.* Gest Library.

CH'ÊN MÊNG-LEI 陳夢雷 (18th cent.) and **others.**

1726. T'u shu chi ch'êng 圖書集成; The largest encyclopedia in print, including material on the animal kingdom, etc., with illustrations, Category IV, Section 19, chüan 1–192. Original edition; 2nd copy published 1885–8. *27·6 × 17·8; 19·7 × 13·3 cm.*

A famous and very extensive work, in the Gest Library of Chinese Literature.

CHENU, Jean Charles [1808–79].

1845–6. Bibliothèque Conchyliologique. Ser. I–II, Tom. 1. *8vo.* *Paris.*

An important treatise on general conchology, with some references to vertebrate zoology.

1847. Leçons élémentaires d'histoire naturelle comprenant un aperçu sur toute la zoologie et un traité de conchyliologie, etc. *4to. pp. 88+284. 12 col. pl.* *Paris.*

(1850)–80. Encyclopédie d'Histoire Naturelle, etc. *22 vols.* Supplément, *9 vols. 4to. illust. Paris.*

Although issued at irregular intervals this encyclopedia contains a vast amount of scientific information supplied by the numerous collaborators that aided the editor during the years of its compilation. Among them, M. E. Desmarest contributed the sections on mammals, reptiles, and fishes, while M. O. des Murs wrote on birds.

1855–79. Encyclopédie d'histoire naturelle. Oiseaux. *4 vols.*

The present volumes form a separately bound treatise on Birds, written by M. O. des Murs for the important *Encyclopédie.*

******, DES MURS,** O., and **VERRAUX,** J.

1862. Leçons élémentaires sur l'histoire naturelle des oiseaux. *2 vols. 8vo. cuts in text and col. pl.* Tome I, *pp. 10+384. 340 hand-col. pl.* Tome II, *pp. 2+380. 64 (63+[1]) hand-col. pl. indexes.* *Paris.*

An unusually well-written text-book (with admirable illustrations) by three of the most painstaking ornithologists of the day.

1870. Ornithologie du Chasseau. *4to. 50 col. pl.* *Paris.*

A rare and elaborately illustrated work, probably based on material from the author's famous *Encyclopédie.* Not listed in the *Br. Mus. Cat.* (*Nat. Hist.*).

CH'ÊN YAO-WÊN 陳耀文 (16th cent.).

1595. T'ien chung chi 天中記; An encyclopedic work on all subjects, including the field of zoology, chüan 54–60. *27 × 16·6 cm.*

From the Gest Library.

CH'ÊN YÜAN-LUNG 陳元龍 [1650–1736].

1735. Ko chih ching yüan 格致鏡原; An encyclopedia of arts and sciences, giving data on birds, insects, land and aquatic animals. *23·7 × 15·2 cm.*

An important item in the Gest Chinese Library.

CHEPMELL, *Major* C. H.

1912. Through Shên-kan, etc. *See* CLARK, ROBERT STERLING.

CHERNEL, István [1865–1921].

1899. Magyar Ornithologie Die Vögel Ungarns. *2 vols. 51 pl.* *Budapest.*

Printed in both German and Hungarian.

1899. Magyarország madarai különös tekintettel gazdasagi jelentöségökre. *2 vols. in 3. 4to. illust. pl.* *Budapest.*

1902. Vom Schutze der Thiere insbesondere vom Schutze der nützlichen Vögel. *8vo. pp. 14. Köszeg.*

A pamphlet on the protection of birds in Middle Europe.

[*c.* **1916**]. Ornithologische Beiträge aus den Feldbriefen Nikolaus von Chernels; mitgeteilt von Stefan von Chernel. *8vo. pp. 331–2+(1)+526–7.*

Field-notes from Eastern Galicia sent by the author's son, who shortly afterwards fell in battle. Reprint, text in Hungarian and German.

1918. Nomenclator avium regni Hungariae. A Magyar birodalorn madarainak nevjegyzéke. *8vo. pp. 76.* (Opuscula ornithologica, vol. 33.) *Budapest.*

A systematic catalogue, with introduction, comments, and other text in Hungarian and German, of the birds of Hungary. The vernacular, German, and Zoological names of each are given.

CHERRIE, George Kruck [1865–].

1916. The Museum of The Brooklyn Institute of Arts and Sciences. Science Bulletin, vol. 2, no. 6. A contribution to the ornithology of the Orinoco region. *4to. pp. 133–374.* *Brooklyn.*

Author's reprint of an annotated list of some 571 species and subspecies based on collections made by the writer and others, as well as with the addition of such species as have been reported by Berlepsch and Hartert in their 'Birds of the Orinoco Region' (*Novitates Zool.* ix, 1902).

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7 1862. Chenu J. C., Des Murs, O. and Verrany, J.
De la fauconnerie ancienne et moderne
Supplement (pp. 176. 8vo. 500. paper) "Leçons élémentaires."
Paris. 45 ill. Index + glossary. = Good little treatise.

→ Chevalier, A. 1889. Atlas du Haut Jangste de Shohang-fou à Ping-chan hsien. Shanghai.

→ Chilvers, H.A. 1931. Hubertus Goes South. A Record of the Love Trek of the Celebrated Zululand Hippopotamus, 1928-1931. Illus., map.

✓ +? Chiorini, G.L. Manuale del moderno Falconiere. Sm. 8vo. 12 col. pl. Hoepli. Milano 1906

→ Chisholm, A.H. Bird Wonders of Australia. 8vo. pp. 209. Index. Many photos. Sydney 1935
Second edition. Well written. Donated by author.
+ Wonders of the Great Barrier Reef by Longley also +

→ 1865. Book of the pike. cr. 8vo. Col. front., figs., pls.
1870. Modern practical angler. 8vo. pp. xvi, 288, col. front., engs.

CHERVILLE, GASPARD GEORGES PECOU (*Marquis*) DE [1821–].
n.d. Le gibier plume. Les oiseaux de la chasse; description; mœurs; acclimatation; chasse. Avec 34 planches hors texte et 64 illust. par E. de Liphart. Quatrième éd. *8vo. pp. xxii+(2)+194. front. (portr.). vignette. 34 pl. (4 eggs). 62 figs. T. of c.* *Paris.*
A literary companion to treatises on fowling and other works on bird hunting, with plates of the species involved, and their eggs. Vignettes in the text. Not in the *Br. Mus. Cat. (Nat. Hist.).*

CHESAPEAKE ZOOLOGICAL LABORATORY. *See* JOHNS HOPKINS UNIVERSITY.

CHESNAYE-DESBOIS, FRANÇOIS A. A. DE LA.
1759. Dictionnaire raisonné et universel des Animaux. *4 vols. 4to.* *Paris.*
This dictionary, not of much practical value to the modern student, is signed (as editor) 'Par M. D. L. C. D. B.'.

CHESSON, W. H., *ed.* *See* BRIGHTWEN, ELIZA, 1909.

CHESTER, GROSVENOR MUSEUM.
1895. Twenty-five photographs by G. W. Webster of the life-history groups of birds in the Grosvenor Museum, Chester. *See* WEBSTER, G. W.

CHESTER SOCIETY OF NATURAL SCIENCE. *Chester, Eng.*
1871–*date.* Annual Report.

1878?–1907? Proceedings.

CHEVALIER, AUGUSTE [1873–].
1907. Mission Chari—Lake Tchad, 1902–4 . . . Récit du Voyage, etc. *8vo. pp. 15+776. 9 pl. 6 maps. illust. in text.* *Paris.*
In the Appendix considerable space is devoted to natural history of which only the fishes are described (of the vertebrates), by J. Pellegrin.

CHEVERLANGE, E.
Paintings of the birds of Fiji. *See* ORIGINAL DRAWINGS, BELCHER, W. J., 1917–30.

CHIAPELLA, C.
? 1871. Manuel de l'oiseleur et de l'oiselier.

CHICAGO ACADEMY OF SCIENCES.
1867–70. Transactions. Vols. 1 and 2 (all pub.).

1896–*date.* Bulletin of Geological and Natural History Survey.

1930. Program of Activities. *8vo.* This periodical is largely devoted to bird life, No. 4, Oct. 1930, being entirely so.

CHICAGO FIELD. *See* AMERICAN FIELD.

CHICAGO. FIELD MUSEUM OF NATURAL HISTORY. *See* FIELD MUSEUM OF NATURAL HISTORY, CHICAGO.

CHICHESTER, C. D.
1905. American Birds . . . and how to know them. *New York.*

CHI HUANG 稽璜 [1710–94] and **others.**
1882. Huang ch'ao t'ung chih 皇朝通志; A history of the Manchu Dynasty (1644–1911), containing material on all kinds of animals, birds, fishes, insects, etc., chüan 124 and chüan 126. *24×15·2 cm.*
From the Gest Library of Chinese Literature.

CHĪKHACHEV, PETR ALEKSANDROVĪCH [1808–90].
1853–69. Asie Mineure; description physique de cette contrée, par P. de Tchihatcheff. *8 vols. in 6. atlas, 3 vols. 36½×29 cm. illust. maps. tab.* *Paris.*
There is an excellent plate by F. Bocourt of a leopard killed in the environs of Smyrna. Other plates illustrate the head of the Wild Goat (*Capra aegagrus*), the Angora Goat, and Anatolian Sheep. There are no bird plates. The principal results are in the fields of palaeontology and botany.

CHILDREY, JOSHUA [1623–70].
1661. Britannia Baconica: or, The natural rarities of England, Scotland, & Wales. According as they are to be found in every shire. *8vo. pp. 30+184.* *London.*
A curious book in which birds are occasionally mentioned as amongst some of the rarities of the various 'Shires' described.

CHILE. UNIVERSIDAD. *Santiago.*
1843–1922. Anales. Series 1.

1923–*date.* Anales. Series 2.

CHILTON, CHAS., *ed.* (WAITE, EDGAR R.)
1909. The subantarctic islands of New Zealand. Reports on the geo-physics, geology, zoology, and botany of the islands lying to the south of New Zealand, based mainly on observations and collections made during an expedition in the government steamer 'Hinemoa' (Captain J. Bollons) in November, 1907. Pub. by the Philosophical institute of Canterbury. *2 vols. 4to.* *Wellington.*
The ornithological report of this expedition by Edgar R. Waite is contained in vol. II, article XXV, pp. 551–84, with 18 illustrations, figs. 6–23, in part colored.

CHIN HSIU WAN HUA KU, etc.
? 1500. *See* ANONYMOUS.

CHINA BRANCH OF ROYAL ASIATIC SOCIETY OF GREAT BRITAIN AND IRELAND. *See* ROYAL ASIATIC SOCIETY—CHINA BRANCH.

CHISHOLM, ALEC H.
[1922]. Mateship with birds; with an introd. by C. J. Dennis. *8vo. pp. 196. numerous illust. T. of c. index. list of scientific names.* Presentation copy from author with autograph. *Melbourne.*
A sympathetic sketch of human relations to bird life.

1929. Birds and Green Places. *8vo. pp. 224. 2 col. pl. numerous photos. index.* *London and Toronto.*
An unusually well-written, popular work on certain Australian birds by a recognized authority on the subject. A list of the scientific names of the avifauna mentioned is given on pp. 217–19.

CHI YÜN 紀昀 [1724–1805] and **others.**
1886. Hsü t'ung chih 續通志; A work of history, embracing material on the animals, fishes, insects, etc., chüan 178–80. *24×15·2 cm.*
From the Gest Library of Chinese Literature.

CHOLMONDELEY-PENNELL, HENRY [1837–1913].
1886. The sporting Fish of Great Britain with notes on ichthyology. *8vo. pp. 8+185. 16 col. pl. figs. in text.* *London.*
A scientific treatise beautifully 'illustrated by 16 lithographs in gold, silver, and colours'.

CHOLODKOWSKY, N. and **SSILANTJEW.**
1901. Die Vögel Europas (in Russian). *48 col. pl.* (Wanting.) *Petersburg.*

CHOULANT, L.
1858. Graphische Incunabeln für Naturgeschichte und Medizin. Geschichte und Bibliographie der ersten naturhistorischen und medizinischen Drucke des XV. und XVI. Jahrhunderts, welche mit illustrierenden Abbildungen versehen sind. *Leipzig.*

An indispensable reference treatise for fifteenth- and sixteenth-century works on natural history. A very good reprint of this rather rare book was published at Munich in 1924.

CHRISTY, CUTHBERT [1863–].
1924. Big game and pygmies; experiences of a naturalist in Central African forests in quest of the okapi . . . with an introductory chapter by Sir Harry H. Johnston. *8vo. pp. xxxi+(1)+325. front. 58 pl. (122 figs.). 1 map (col. fold.). T. of c. 2 append. index.* *London.*

This volume deals mainly with the Ituri Forest region of the Congo, and is largely based upon the last and longest of the author's expeditions to that Forest, undertaken on behalf of the Belgian Government during the years 1912, 1913, and 1914. The forest birds are described in chapter XXV, pp. 245–53.

CHRISTY, ROBERT MILLER. *See* ESSEX FIELD CLUB, 1885–1910.

1890. The birds of Essex; a contribution to the natural history of the county. (Essex field club. Special memoirs, vol. 2.) *8vo. pp. viii+302. front. 2 pl. 162 figs. T. of c. 2 append. index.* *Chelmsford.*

The result of over 15 years collecting information and materials regarding the birds of the County. Tables of the arrival of the Summer Migrants, notices of Essex ornithologists and chief Essex bird collections are given, as well as notes on wild-fowl decoys and wild-fowling in the County.

1891. A catalogue of local lists of British birds arranged under counties. From *The Zoologist*, with numerous additions. With a new Introduction and title-page. *8vo. pp. 42.* *London.*

The present copy is from the library of H. Kirke Swann with his notes and corrections.

CHUBB, CHARLES [1851–1924].
1912–17. The birds of South America. *See* BRABOURNE, W. W. K. and CHUBB, C.

1916–21. The birds of British Guiana, based on the collection of Frederick Vavasour McConnell. Preface by Mrs. F. V. McConnell. *2 vols. 8vo.* Vol. I, *pp. liii+528+(1). front. (portr.). 10 pl. (col. birds). 16 pl. 1 map (fold.). 95 figs. bibliogr. addend. 2 indexes.* Vol. II, *pp. xcvi+615. 10 pl. (col. birds). 8 pl. addend. 2 indexes.* *London.*

An account of the birds of British Guiana with full descriptions of plumage, habits, nidification, and range, etc. Vol. I contains the preface by Mrs. McConnell, p. 3, and also apparently the itinerary of McConnell's first Roraima expedition, pp. v–xxxv, whilst vol. II contains the itinerary of the second Roraima expedition, written by John J. Quelch, who accompanied McConnell on that occasion in 1898. Two hundred and fifty copies of the work were printed of which the present one is No. 74.

CH'U JÊN-HUO 褚人穫 (18th cent.).
1834. Hsü hsieh p'u 續蟹譜; A short treatise on crabs. *pp. 8.* (In Chao tai ts'ung shu 昭代叢書丙集 chüan 50.) *24·3×15·5 cm.*

CHU MU 祝穆 (13th cent.).
1604. Shih wên lei chü 事文類聚; An encyclopedia containing historical incidents and literary writings on animals, birds, insects, fishes, etc., hou chi 後集 (2nd part) chüan 33–50. *24·5×16·8 cm.*

From the Gest Library of Chinese Literature.

CHURCH, JOHN.
[**1794**]**–1805.** A cabinet of Quadrupeds . . . with drawings by J. Ibbetson. *2 vols. folio. illust.* *London.*

The Blacker Library has a fine large paper copy in which the engravings (by J. Tookey) of Ibbetson's work are well reproduced. This treatise, originally issued in parts, has considerable historical and scientific interest.

CHURCHILL, A. BAILEY-. *See* BAILEY-CHURCHILL, A.

CHURCHILL, ABBY PIERCE.
1905. Birds in literature. *8vo. pp. (6)+9–186. bibliogr.* *Worcester, Mass.*

This useful work is rare, not in *Br. Mus. Cat.* (*Nat. Hist.*), having been printed privately. It is a compilation of selections from the writings of most of the best-known American authors and poets who have taken birds as their subject.

CHURCHILL, LLEWELLA PIERCE.
1902. Samoa'uma where life is different. *8vo. pp. (12)+13–295. front. (portr.). 23 pl. T. of c.* *New York.*

The words of the title mean 'All Samoa'. There are a few references to birds, among them the tiny island parrot, no larger than an English sparrow (pp. 274–5), the majestic frigate bird, p. 280, etc.

CHUR. (Schweiz.) Naturforschende Gesellschaft. Graubündens. (Founded 1826.)
1826–1930. Jahresbericht.

A new series of the *Jahresbericht* began in 1853, and there is an index for every 10 vols.

CINCINNATI SOCIETY OF NATURAL HISTORY.
1878–1917. Journal.

1876. Proceedings. Index in first 10 vols. of the Journal.

CIRCULAR OF THE CALIFORNIA ORNITHOLOGICAL CLUB. (Founded 1889.) *San Francisco, Cal.*
1889. Circular No. 1. *pp. 2* (all issued).

Contains directions for collecting Birds' Stomachs. As supplement, Constitution and by-laws of the Club.

CLAPPERTON, HUGH [1788–1827] and **DENHAM,** *Maj.* D.
1826. Narrative of travels and discoveries in Northern and Central Africa, &c. *See* DENHAM, D. and CLAPPERTON, HUGH.

CLARENDON PRESS SERIES.
1870. Forms of animal life. *See* ROLLESTON, G.

CLARK, AUSTIN HOBART [1880–].
1926. Animals of land and sea. *8vo. pp. xxxiv+276. 10 pl. 740 figs. T. of c. index.* *London.*

An attempt to present the animal world as a biologic unit. Four plates contain 12 figures of birds. The book forms one of the volumes of the 'Library of Modern Sciences'.

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1732
Churchill's Collection of Voyages. 6 vols. sm. folio. London [Gl. library]. illustrated
Zoology

< Cirino, G. 1653, De natura et dolertia cammm. 8vo. Palermo.
< Clapham, R. 1922. Book of the otter. front., illus.

> Clements, Fred. E. + others. 1929. Exper^{l}. Vegetation. Climaxes + Climates.

CLARK, E. B.
1901. Birds of lakeside and prairie. *Chicago, New York.*

CLARK, G. A. *See* UNITED STATES. FISHERY REPORTS, 1898–9.

CLARK, HUBERT LYMAN [1870–].
1887. The birds of Amherst and vicinity, including nearly the whole of Hampshire County, Mass. *8vo. pp. 55. 2 indexes. Amherst, Mass.*
An annotated list of 177 species. In this copy are inserted two letters dated April 21 and 28, 1887, from the author to Dr. C. Hart Merriam, on subjects connected with the work.

CLARK, J. W. *See* ROYAL SOCIETY OF LONDON, 1879.

CLARK, ROBERT STERLING; **SOWERBY,** ARTHUR DE C., and **CHEPMELL,** C. H.
1912. Through Shên-kan; the account of the Clark expedition in north China, 1908–9. *8vo. pp. 8+247. front. (map col.). 58 pl. (5 col.). map (col.). T. of c. 6 append. index. London.*
This expedition covered a period of 18 months.

CLARK, *Rev.* WM.
1856–8. Handbook of Zoology. *See* HOEVEN, JEAN VAN DER.

CLARKE, BENJAMIN [1813–90].
1841. *See* BUFFON, G. L.

1879. A New Arrangement of the Classes of Zoology, etc. 1st ed. *4to. London.*

1881. A new arrangement of the classes of zoology, founded on the position of the oviducts and ovaries, including a new mode of arranging the mammalia. 2nd ed., with additions. *4to. pp. (2) +3–24. 2 tab. addend. London.*
The title of this second edition indicates the scope of the work. Two folding tables, with emendations of table I, render the new arrangement of the classes of zoology more clear.

CLARKE, R. H.
1898. The bird plague; or, Septic fever in cage birds. Rev. and enl. *16mo. pp. 22+(2). London.*
A lecture delivered before the London and Provincial Ornithological Society on October 12, 1897, illustrated by numerous lantern slides.

CLARKE, ROBERT.
1843. Sierra Leone, with the Natural History of the Colony. *8vo. pp. iv+178. 10 pl. 1 map (col.). London.*

CLARKE, WILLIAM EAGLE [1853–] and **ROEBUCK,** W. D.
1881. A handbook of the vertebrate fauna of Yorkshire. Being a Catalogue of British Mammals, Birds, Reptiles, Amphibians, and Fishes found in the County. *8vo. pp. xlviii+149. bibliogr. append. index. London.*
There is an annotated list (pp. 17–89) in which 380 species of birds are listed.

****** and others.**
1880–9. Report on the migration of birds . . . 1884(–86). Rept. 6–8. *See* BROWN, J. A. HARVIE-.

1912. Studies in bird migration. With maps, weather charts, and other illustrations. *2 vols. 8vo.* Vol. I, *pp. xvi+323. front. 8 pl. (1 fold.). 1 fig. T. of c.* Vol. II, *pp. vii+(1)+346. front. 15 pl. 1 fig. T. of c. index. London.*
A series of special investigations which a residence of 47 weeks in lighthouses and in a lightship, as well as 14 weeks spent on the remote islands of St. Kilda and Ushant, enabled the author to carry out.

1923. Guide to the birds of Europe and North Africa. *See* RAMSAY, R. G. W.

1923. Side lights on birds. *See* HORSFIELD, H. K.

1927. Manual of British Birds. *See* SAUNDERS, HOWARD.

CLAUDY, CARL HARRY [1879–].
[1924]. Tell-me-why stories about animals. *8vo. pp. (6)+7–302+(1). front. (col.). 3 pl. (col.). T. of c. London.*

CLAUS, CARL FRIEDRICH WILHELM [1835–99].
1863. Ueber die Grenze des thierischen und pflanzlichen Lebens. *4to. pp. 2+23. Leipzig.*
One of the early and best known tractates of this famous naturalist.

1866–8. Grundzüge der Zoologie. *8vo. pp. 12+1170. index. Marburg.*
This well-known handbook has passed through several German (under the title *Lehrbuch der Zoologie*), French, and English editions. It is highly praised by teachers of zoology.

1884. Traité de Zoologie. Tr. by Moquin-Tandon from the 3rd German Edition. *2 vols.*

1884. Traité de zoologie. 2e éd. française tr. de l'allemand sur la 4e éd. entièrement refondue et considérablement aug. par Gaston Moquin-Tandon. *4to. pp. 16+1566. illust. Paris.*
Another French edition of his *Lehrbuch der Zoologie.*

1885. Elementary text-book of zoology. Tr. and ed. by Adam Sedgwick. *2 vols. 8vo.* Vol. I, *pp. 615. 491 figs. T. of c. index.* Vol. II, *pp. 352. 706 figs. T. of c. index. London.*
An English translation of Claus' *Lehrbuch der Zoologie.*

1885. Lehrbuch der Zoologie. 3. umgearb. Aufl. Mit 889 Holzschnitten. *8vo. pp. 12+828. Marburg.*
An abridgment of the author's *Grundzüge der Zoologie*, 1st ed., 1868.

CLAUSEN, ROY ELWOOD [1891–] and **BABCOCK,** E. B.
1918. Genetics in relation to agriculture. *See* BABCOCK, E. B.
A second edition, with few changes, was published in 1927.

CLAVIGERO, FRANCISCO JAVIER [1731–87].
1787. The History of Mexico, etc. *2 vols. 4to. London.*
This treatise is an amended translation of the author's Spanish works, most of them published in Mexico City.

CLELAND, JOHN BURTON [1835–1925].
? 1911. The classification of the vertebrata. *8vo. pp. 2+11. London.*

1918. The food of Australian birds. An investigation into the character of the stomach and crop contents. *8vo. pp. 112. T. of c. 3 append.* Author's reprint. *Sidney.*

CLENNELL, L. *See* ANONYMOUS, 1815. Recreations in Natural History.

CLERMONT, THOMAS FORTESCUE, *Baron* [1815–87].

1859. A guide to the quadrupeds and reptiles of Europe; with descriptions of all the species. *12mo. pp. 8+277.* *London.*
Bibliography, pp. 7–8. *See also* FORTESCUE, THOMAS.

CLEVELAND ACADEMY OF NATURAL SCIENCES, CLEVELAND, OHIO.

1845–59. Proceedings.

CLEVELAND BIRD LOVERS' ASSOCIATION. *See* BLUE BIRD.

CLEVELAND MUSEUM OF NATURAL HISTORY.

1922–*date*. Bulletin.

1922–*date*. Pocket Natural History Series.

1928–*date*? Scientific Publications.

CLIFFORD, WILLIAM H.

1902. Against the destruction of white herons and red ibises on the lower Amazon . . . by Emil A. Goeldi . . . Translated from the Portuguese into English by W. H. Clifford. *See* GOELDI, EMIL A.

CLIFTON COLLEGE SCIENTIFIC SOCIETY.

1869–87. Transactions. (Wanting.)

CLODD, EDWARD. *See* BATES, H. W., 1892.

CLODIUS, DAVID. *See* BOCHART, SAMUEL, 1675.

CLODIUS, G. and **WÜSTNEI,** C.

1900. Die Vögel der Grossherzogthümer Mecklenburg, &c. *See also* WÜSTNEI, C.

CLUBB, JOSEPH ALBERT.

1920. Handbook and guide to the British birds on exhibition in the Lord Derby natural history museum, Liverpool. 2nd ed. *8vo. pp. 18+73. 12 pl. index.* *St. Annes-on-the-Sea.*
The first edition of this useful catalogue was issued in 1914, since which the exhibits have been greatly increased.

CLUB VAN NEDERLANDSCHE VOGELKUNDIGEN.

1928–30. Orgaan der Club van Nederlandsche Vogelkundigen. *8vo. illust. pl.* Continued from their Jaarbericht (q.v.). *Zutphen.*

CLUSIUS, CAROLUS [1526–1609] (LÉCLUSE, C. DE).

1601. C. Clusii . . . Rariorum Plantarum Historia, etc. *folio. pp. 364. illust.* Brunet 112. *See also* LÉCLUSE, C. DE. *Antverpiae.*
There are a few references to animal life in this treatise. Several of the works of this well-known naturalist are in the Osler Library.

1605. C. Clusii . . . Exoticorum libri decem; quibus Animalium, Plantarum . . . Item P. Belloni observationes, eodem C. Clusio interprete, etc. *folio. pp. 378.* Brunet 112. *Leyden.*

1611. Curae posteriores . . . aliquot animalium novae Descriptiones . . . *folio.* (*Antwerp.*)
A good and short account of Clusius' life and works is to be found on p. 214 of the *Bib. Osleriana*: 'Charles de L'Escluse, after studying at several Universities translated and published the narratives of travelers in many lands, among them accounts of animals, plants, flowers, drugs, etc. discovered by early Spanish and Portuguese explorers. He records many curious and interesting facts.'

COCKBURN-HOOD, THOMAS HOOD [–1889].

[**1872**]. Remarks upon the footprints of Moas at Poverty Bay and upon their recent extinction. *8vo. pp. 14.* [*Waikato.*]
An interesting account of specimens obtained by the author. *See also* HOOD, THOMAS.

COCKERELL, THEODORE DRU ALISON [1866–].

1920. Zoology, a text book for colleges and universities. *8vo. pp. xi+(1)+558. 211 figs. T. of c. index.* *Yonkers-on-Hudson, N.Y.*
The first volume of a series of college science texts, to be given preferably in the sophomore year, and designed for the use of those who have had little or no previous training in the subject. References to birds on pp. 373–95 with 19 illustrations, figs. nos. 150–68.

COCKS, ALFRED HENEAGE.

1894. Bird life in arctic Norway, &c. *See* COLLETT, R.

COCTEAU, J. T. *See* SAGRA, RAMON DE LA, 1839–61.

COIMBRA, PORTUGAL. Museu Zoológico.

1924–*date*. Memórias e Estudios.

COLCORD, WILLARD ALLEN [1860–], *ed.*

[**1924**]. Animal land, containing 300 delightful, entertaining, instructive stories about animals, birds and insects, for children, mothers and teachers. *8vo. pp. (22)+439. 16 pl. T. of c. index.* *Philadelphia.*

COLE, FRANCIS J. [1872–].

1913. The Early Days of Comparative Anatomy. *8vo.* *Liverpool.*

**** and **EALES,** NELLIE B.

[**1917**]. The History of Comparative Anatomy. Pt. 1 (all pub.). *illust.* *London.*
Both these titles are from the Osler Library.

COLE, ROBERT J.

[**1922**]. Birds, with pictures from J. J. Audubon's (*sic*) 'Birds of America'. *See* BURROUGHS, J.

COLEBY, H.

1876–81. A catalogue of British and foreign eggs; with some account of the habits and nidification of the birds. *folio. pp. 889. 74 pl.* (*col., 7 not numbered*). *index.* Original manuscript.
A unique manuscript catalogue beautifully written in ink on foolscap paper, with excellent original water-color paintings of eggs of many of the species enumerated. The catalogue comprises the following sections: British and European Birds, pp. 1–691; Sundry European Species which are not now British, pp. 693–730e; Some of the Birds of North America and Jamaica, pp. 731–889.

1878. A register of eggs [and skins] of British and European birds, to which are added a few African and American species. *8vo. pp. 54+301. index.* Original manuscript. [*Bath.*]
Unique manuscript register of the eggs and skins in the collection of Henry Coleby of Bath, apportioned as follows: viz. Eggs of British Birds, pp. 1–135; European Eggs which are not British, pp. 137–44; Asiatic eggs (East Indies), pp. 145–7; South African Eggs, pp. 149–50; Australian Eggs, p. 151; North American Eggs (Canadian, from W. E. Saunders), pp. 153–68; United States and West Indies, 169–80. Skins of British and Foreign Birds, pp. 181–203; Notes on all of the above, and general remarks on the seasons of 1878–82.

COLEMAN, ROBERT H. *See* DONALDSON, ALFRED L., 1921.

COLERIDGE, GILBERT JAMES DUKE [1859–].

1923. Pan's people, the lure of little beasts. *8vo. pp. [x]+183. T. of c.* *London.*

Authus

Cobb. A.F. n.d. Birds of the Falkland Islands. Wms 8vo. ? 1930.

A record of observation with the camera.

← ~~Coe,~~ Coe, C.C. 1895. Nature versus natural selection. 8vo.

← 1888. Story of creation. 8vo. pls., engs. [Clodd]

[Ca. 1580.] Piscium vivae icones in aes incisae et editae ab Adriano Collardo. Antwerp.
fine copy. early state of pl. Engraved, pictured title page. clean typography.
26 pl. 4to. Very rare. No copy in Br. Mus. (Nat Hist). Pur. from Quaritch. Oct 21/31

→ Collet. L. 1908. Les dépôts marins. 8vo. map, 35 engs. [Vide supra] ↗

COLLAERT, ADRIAEN (COLLARDUS, ADRIANUS) (d. 1618). *Artist-illustrator.*

[?**1610**]. Animalium quadrupedum omnis generis verae . . . in aes incisae et editae ab Adriano Collardo. *8vo. 20 eng. pl. including title. n.p. no text.*

A rare example of the many small 'albums' of animal pictures published by this well-known Dutch artist. The engraved title represents Orpheus charming and taming the birds and beasts of the forest.

[?**1610**]. Avium vivae icones Acurantissima imitatio earum quoe incisae et edite sunt . . . (Pub. by) G. B. Rossi, Piazza Nauona. *16 cop. pl. incl. engraved title-page.*

One of the artist's earliest and best albums of bird life. Evidently first states of the plate and before all letters (except the systematic names of the birds) a very clean, clear copy. Very rare in this condition.

[?**1610**]. Avium vivae icones, in aes incisae & editae ab Adriano Collardo. *12mo. pp. 1+15. Engraved title.* Date from *Cat. Br. Mus.* (*Nat. Hist.*). [*Antwerp.*]

A rare and curious collection of copper-plate engravings of birds by an early Dutch engraver. The copy in hand has one more plate than is mentioned by the collator of Bryan's *Biog. Dict. of Painters and Engravers*, but the same number (16) as in the British Museum copy. Duplicate set of these pictures are hung in the E.S.W. Library of Ornithology.

[?**1612**]. Avium Vivae Icones, in aes incisae & editae ab . . . *8vo. 12 pl., including engraved title-page. n.p. unpaged.*

Most of the plates in this small album of bird portraits are numbered and have legends of systematic names. Some of these pictured booklets by Collaert are quite rare; others fairly common. The collection in hand appears to belong to the former category.

COLLARDUS, ADRIANUS. *See* COLLAERT, ADRIAEN.

COLLECTOR, THE. *See* YOUNG COLLECTOR, 1881–2.

COLLECTOR'S GUIDE FOR BIRDS, SKINS AND EGGS. *See* BR. MUS. NAT. HIST., 1921.

(THE) COLLECTORS' MONTHLY.
8vo. *Danielsonville, Conn.*

A monthly Magazine devoted to Ornithology, Oology, and Natural History. Charles H. Prince, Editor and Publisher.
Vol. I, Nos. 1–2, Nov.–Dec. 1890, *pp. 1–8.*
Vol. II, Nos. 1–12 (6 and 7 double), Jan.–Dec. 1891, *pp. 9–76.*
Vol. III, Nos. 1–5, Jan.–May 1892, *pp. 1–40.*
W. W. Worthington's *Notes on the Birds of Long Island* ran through the entire series.
Suspended, the unexpired subscriptions filled by the *Oologists' Journal.*

COLLETT, ANTHONY KEELING [1877–].
1897. The Heart of a Bird. *8vo. pp. 296. illust.* *London.*

The first edition of a sensibly written and popular work.

1906. A handbook of British inland birds; with coloured and outline plates of eggs, by Eric Parker. *8vo. pp. xx+289. pl. I–X. front. T. of c. index.* *London.*

The plates, plain and colored, illustrate the oölogy of Great Britain. The treatise is a useful guide for the amateur student of local ornithology. It is not listed in the *Cat. Br. Mus.* (*Nat. Hist.*).

[**1927**]. The heart of a bird. *8vo. pp. vi+(2)+287. front. 7 pl. T. of c. index.* *London.*

One of several editions of this book, the substance of which had already appeared as articles in *The Times* and *The Nineteenth Century and After.* The author in following up the lives of the birds, month by month, gives one a very good insight into the real 'heart of a bird'. The book should be especially perused by all highly sentimental people, and those who imagine the lives and feelings, etc., of a bird are akin to their own.

****** and THOMAS,** W. B.
n.d. Birds through the year. *See* THOMAS, W. B.

COLLETT, ROBERT [1842–1913].
1864. Oversigt af Christiania omegns Ornithologiske Fauna. *8vo. pp. 230.* *Christiania.*

This treatise on Norwegian ornithology was written by a well-known naturalist, a most voluminous contributor to the literature of zoology, local and general.

1875. Norges fiske, med Bemærkninger om deres Udbredelse. *8vo. pp. 2+240. pl. map.* *Christiania.*

1877. Om et Par for Norges Fauna nye Fuglearter. *8vo. pp. 4.* *Christiania.*

1877–81. [Birds of Norway.] . . . Norges Fuglefauna, etc. *6 excerpts in 1 vol. 8vo. 3 pl. (fold.). 2 figs.* *Christiania.*

Short reports on the bird fauna of Norway, including records of species new to Norway and an illustrated article on the structure of the skull and ear-opening of the Strigidae. The present copy is from the Godman Library with book-plate.

1881. Craniets af Øreaabningernes Bygning hos de nordeuropæiske Arter af Familien Strigidae. *8vo. pp. 38. pl.* (in his *Birds of Norway*, 1877–81). *Christiania.*

1881. *Oreocincla varia* (Pall.) og *Aegialitis alexandrinus* (Lin.), nye for Norges Fauna. *8vo. pp. 6* (in his *Birds of Norway*, 1877–81). *Christiania.*

1892–8. On a collection of birds from Tongoa, New Hebrides (*Christiania Videnskabs-Selskabs Forhandlinger*, 1892, no. 13), and On a Second Collection (1898, no. 6). *8vo. pp. 11+7.* *Christiania.*

Notes on two small collections of birds, 20 and 7, made in 1890 and 1897.

1894. Bird life in Arctic Norway, a popular brochure; tr. from the Norwegian by A. H. Cocks. *8vo. pp. xi+42+x. 3 pl.* *London.*

A portion of the above (in German) was read before the Second Intern. Congress of Ornithology at Budapest in 1891. Later, a condensed edition of the whole brochure was published in Norwegian. The present volume, with an appendix—'A List of the Birds of Norway arranged according to the Rules of the B.O.U.'—was taken by the translator.

1900. *See* NANSEN, F.

1900–6. The Norwegian north polar expedition, 1893–96. Scientific results. *See* NANSEN, F.

1906. Hybrids among Norwegian birds, and their diagnoses. (*Christiania Videnskabs-Selskabs Forhandlinger*, 1905, no. 11). *8vo. pp. 26.* Author's reprint. *Christiania.*

On certain hybrids of the families *Turdidae* and *Tetraonidae.*

COLLIER, J. H.
1871. Manual of cage birds, American and foreign, with directions for breeding, rearing, and keeping them. *16mo. pp. 124. T. of c. index.* *New York.*

A rare, semi-popular treatise, not listed in the *Cat. Br. Mus.* (*Nat. Hist.*).

COLLIN, ALBERT.
1929–*date*. Index Ornithologicus sive Nomenclator Avium tum viventium tum fossilum. Anno I, No. 1. *8vo. pp. 2+18. Kotka, Finland.*

The preface to this valuable serial reads: A bi-monthly ornithological Journal devoted chiefly to the successive development of an Avian Nomenclator according to the present system.

COLLIN, G. D. *See* THUNBERG, C. P., 1822–3.

COLLIN, JONAS SIGISMUND [1840–1913].

1882. Skildringer af Naturvidenskaberne. *Kjøbenhavn.*

1884. Om Limfjordens Tidligere og nuværende marine Fauna med særligt Hensyn til Bløddyrfaunaen. *8vo. pp. 168+2.* *Kjøbenhavn.*

COLLINGE, WALTER EDWARD [1867–].

1913. The food of some British wild birds: a study in economic ornithology. *8vo. pp. viii+109. T. of c. bibliogr. index.* *London.*

The conclusions arrived at are the result of eight years' work, based on the examination of the stomach contents of upwards of 3,000 adult birds, and 300 nestlings, representing 29 species of British birds. Five of these proved to be distinctly injurious, eight were too plentiful and consequently injurious, whilst the remaining 16 were found to be beneficial.

1924–7. The food of some British wild birds. 2nd ed. *8vo. pp. xvi+(6)+427. front. (portr.). 8 pl. 47 figs. (diagr.). T. of c. 6 append. bibliogr. index.* *York.*

The present edition was issued in 9 pts.

COLLINGWOOD, CUTHBERT [1826–96].

1859. The Fauna of Blackheath and its vicinity. Part I. Vertebrate Animals. (Greenwich Natural History Club.) *8vo.* *London.*

1861. Contributions to British Ornithology. *8vo. pp. 26.* (Bird Notes.)

1868. Rambles of a Naturalist . . . China Sea. *8vo. pp. xiii+445. 3 pl. text illust.* (Wanting.) *London.*

COLLINS, ARCHIE FREDERICK [1869–] and **COLLINS,** V. D.

1920. The wonders of natural history; a comprehensive account of man in the making and of prehistoric and present day animals. *8vo. pp. xv+204. front. (col.). 80 pl. T. of c. index.* *New York.*

Included in the above is an interesting chapter on prehistoric birds; also one on birds of to-day, including a picture of the now extinct Dodo. Rare; not in the *Cat. Br. Mus. (Nat. Hist.).*

COLLINS, CHARLES [d. 1744].

n.d. [Plates of birds.] Printed for Thos. Bowles in St. Paul's Church Yard. *12 pl. (col.) in portfolio.* [*London.*]

Examples of the work of Charles Collins, an eighteenth-century illustrator. The 12 colored plates (115 figs.) represent 58 species of British birds. The size of the plates is 18×14 in.

n.d. Drawings of birds and beasts. *See* ORIGINAL DRAWINGS.

COLLINS, DAVID [1756–1810].

1798–1802. An account of the English colony in New South Wales. *2 vols. 4to. fronts. illust. pl. (partly col.). maps.* *London.*

Facing p. 92 in the second volume is a colored plate of the Lyre Bird, the first published illustration of it. It was thought to be a 'variety of the Bird of Paradise'.

COLLINS, GEORGE EDWARD.

1911. The natural history and antiquities of Selborne. *See* WHITE, GILBERT.

COLLINS, SAMUEL [1618–1710].

1685. A Systeme of [Comp.] Anatomy, treating of the Body of Man, Beasts, Birds, Fish, Insects, and Plants. Pub. 'In the Savoy'. *2 vols. folio. 74 pl.*

A rare and early treatise on comparative anatomy.

COLLINS, VIRGIL DEWEY.

1920. The wonders of natural history, &c. *See also* COLLINS, A. F.

COLMAR. Société d'histoire naturelle de Colmar.

1860–88. Bulletin, vols. 1–29.

1883–5. Supplement (all pub.).

COLOMBO MUSEUM. *Colombo, Ceylon.*

1914–*date*. Memoirs. *See also* CEYLON JOURNAL OF SCIENCE—SPOLIA ZEYLANICA.

1912–14. Reports.

COLORADO COLLEGE, COLORADO SPRINGS.

1904–30. Science Series, including Nos. 1–29, Colorado College Studies.

COLORADO MAGAZINE.

1923–*date*. (Including the forerunner, Bulletin of the Colorado State Historical and Natural History Society.)

COLORADO MUSEUM OF NATURAL HISTORY. *Denver.*

1915–*date*. Proceedings.

COLORADO UNIVERSITY.

1913. Bulletin. Natural History Series.

1902–*date*. Studies.

COLQUHOUN, JOHN [1805–85].

1856–74. Lectures on natural history. *4 vols. 8vo.* *Edinburgh.*

Delivered before various literary Societies and entitled 'Sport'; Instinct and Reason; The Ferae Naturae of the British Islands; and the Natural History of the British Islands.

COLTON, BUEL PRESTON [1852–1927].

[**1903**]. Zoölogy, descriptive and practical. Part I, Descriptive. Part II, Practical. *2 vols. in 1. 8vo.* I, *pp. x+375+(1). front. 201 figs. T. of c. index.* II, *pp. xvii+(1)+204. 2 figs. T. of c. index.* *Toronto.*

The principal change from the earlier edition of 1886 consists in the addition of directions for field study (part II) and for the laboratory study of the live animals.

1906–8. Zoology, descriptive and practical. *Toronto.*

A reprint of the 1903 edition. An additional printing, published in Boston, appeared in 1908.

COMMENTARII ACADEMIAE SCIENTIARUM IMPERIALIS PETROPOLITANAE.

1728–38. Tom. I–V. (Ad annos 1726–36.) *4to.* Title also in French. *Petropol.*

COMMENTARII DE REBUS IN SCIENTIA NATURALI ET MEDICINA GESTIS.

1752–98. *Leipzig.*

COMMONWEALTH OF MASSACHUSETTS. Department of Agriculture.

1918–*date*. Items of Interest. (I–LXXXIII. 1918–28.) Edited by Edward Howe Forbush.

← Series of 8 plates of British Birds. London. 1736.

COMPANYO, Louis [1781–1871].
1861–4. Histoire naturelle du département des Pyrénées-Orientales. *3 vols. 8vo. illust.* *Perpignan.*
A well-written description, from the natural history viewpoint, of south-eastern France. The Animal Kingdom is described in vol. III.

COMPARATIVE OOLOGIST, THE; and Journal of the International Museum of Comparative Zoology.
1924–7. Edited by Wm. Leon Dawson. Vol. 1, No. 1, May 1924. Covers, Semi-Annual. Illustrated. *pp. 58. Santa Barbara, California, U.S.A.*
This publication is the organ of the International Museum of Comparative Oology. The first number contains mostly contributions by the Editor on various subjects, some of them unconnected with oology. It continues the *Museums Journal.*

COMPTE RENDU DES SÉANCES DU CONGRÈS INTERNATIONAL D'ORNITHOLOGIE. *See* ORNIS and CONGRESS.

COMPTE RENDU DE LA SOCIÉTÉ FRIBOURGEOISE DES SCIENCES NATURELLES. 1879–*date*. *See* FRIBOURG.

COMPTE RENDU DES SÉANCES DE LA SOCIÉTÉ DE PHYSIQUE ET D'HISTOIRE NATURELLE DE GENÈVE. 1814–*date*. *See* GENEVA.

COMPTES RENDUS DE LA SOCIÉTÉ LINÉENNE DE BORDEAUX. 1831–*date*. *See* BORDEAUX.

COMTE, Joseph Achille [1802–66].
1841. The Book of Birds. *8vo. 38 col. pl. 150 text-figs. See also* BUFFON, G. L. *London.*
One of the Buffon series, translated by Benjamin Clarke.

(THE) CONCISE KNOWLEDGE LIBRARY.
1904. The concise knowledge natural history, by R. Lydekker, R. Bowdler Sharpe, and others. *See* LYDEKKER, R.

(THE) CONDOR; a magazine of western ornithology. Pub. by the Cooper ornithological club of California.
1899–1930. *Santa Clara, Cal. [etc.]*
Not only is this well-known, profusely illustrated, well-printed, and well-edited magazine a repository of much valuable information regarding Pacific Coast Ornithology, but its many papers record new species and original observations on bird life in other parts of the Union and in neighboring countries, including Canada and Mexico. To its columns have contributed the best names among western naturalists while its editorial staff constitutes a list of energetic, scientific, and devoted ornithologists. Apart from this official staff one notices the names of Harold Bryant, J. H. Bowles, Leon Dawson, H. J. Rust, W. P. Taylor, J. C. Tyler, R. H. Beck, Donald Dickey, and many other well recognized authorities—thus establishing the *Condor* as the first among the special journals published west of the Alleghanies. The present success of the journal has been largely due to the untiring devotion of the editor-in-chief, Joseph Grinnell.

CONFÉRENCE INTERNATIONALE POUR LA PROTECTION DE LA NATURE.
1914. Recueil des procès-verbaux, 1913. *folio. pp. 247. illust.* *Berne.*

CONGER, George Perrigo [1884–].
1929. New views of evolution. *8vo. pp. 10+235. illust.* (Philosophy for the layman series.) *New York.*
A popular but reliable treatment of the subject.

CONGRÈS INTERNATIONAL DE DÉFENSE DES INDUSTRIES DE LA PLUME POUR PARURES. PARIS, 1914.
1914. Rapport général. *4to. pp. 126+[1]. pl.*
Largely an ill-concealed defence of the traffic in birds' feathers for the purposes of fashion.

CONGRÈS INTERNATIONAL DE ZOOLOGIE. 1889–*date*.
The Comptes rendus, Bulletins, Vorträge, Proceedings, etc., of the quadrennial meetings are generally issued from the place of meeting. The first session took place at Paris in 1889; then Moscow, 1892; Leyden, 1895; Cambridge (Eng.), 1898; and so on. *See also* ORNIS and INTERNATIONAL CONGRESS OF ORNITHOLOGY.

CONGRÈS NATIONAL DES PÊCHES MARITIMES.
1907?–9? Mémoires et Comptes Rendus.

CONGRÈS, NEDERLAND. Natur en Geneeskunde. *See* NED. NATUR EN GEN. CONGRES, 1887–*date*.

CONGRESO DE NATURALISTAS ESPAÑOLES. *Saragossa.*
1908? Actas y Memorias.

CONGRESS, INTERNATIONAL, OF ORNITHOLOGY.
Although an organ (see *Ornis*) was early appointed for reporting the activities of the Congress these were often published elsewhere under one or more rubrics. A list of some of them follows:
I. Premier Congrès international Ornithologique, à Vienne, April 1884.

1884. Rapport du Délégué Suisse. *8vo. pp. 35.* *Genève.*
II. Internationaler Ornithologischer Congress, Budapest, 1891. Transactions. (Bericht, Compte rendu, and Hungarian report) appear in the three languages and appear in three parts. (1) Official: Berlin and Budapest, 1892. (2) Scientific. (3) Migration, etc., and Index.
Congrès Ornithologique international d'Aix-en-Provence, Nov. 1897.

[1898]. Actes, délibérations, résolutions. *4to. pp. 43.* *[Aix.]*
III. Congrès Ornithologique international, Paris, 1900.

1902. Compte rendu des séances publié par E. Oustalet et J. de Claybrooke. *8vo. with plates and cuts.* *Paris.*
IV. **1907.** Proceedings of the Fourth International Ornithological Congress, London. June 1905. Forming Vol. 14 of *Ornis.* Ed. by R. B. Sharpe, E. J. O. Hartert, and J. L. Bonhote. *pp. 696. 18 pl. (6 col.) and figs.* *London.*
The proceedings of the fifth Congress, held in Berlin, were published altogether independently of *Ornis,* that journal having ceased, apparently, to be the official organ of the Congress. See *Ornis.*
V. International ornithological Congress. Fifth, Berlin, 1910.

1911. Verhandlungen des v. Internationalen Ornithologen-Kongresses in Berlin 30. mai bis

[**CONGRESS, INTERNATIONAL, OF ORNITHOLOGY** (*contd.*)]

4. juni 1910. Hrsg. von Herman Schalow . . . Deutsche ornithologische Gesellschaft. *pp. x+1185+[1]. illust. pl. (part col.). maps (part fold.).* *Berlin.*

VI. Congrès International Ornithologique. Sixth Session: Copenhagen, 1926.

1929. Verhandlungen des VI. Internat. Ornithologen-Congresses in Kopenhagen, 1926. Unter Leitung des Präsidenten . . . F. Sleinbacher. *8vo. pp. 6+641. 20 pl. 1 map. figs. in text.* *Berlin.*

VII. **1930.** Seventh Congress. Amsterdam, Holland. June 1–7. President, Prof. Dr. Einar Lönnberg, Stockholm. Secretary, Prof. Dr. L. F. de Beaufort, 53 Plantage Middenlaan, Amsterdam.

CONGRESS OF RUSSIAN ZOOLOGISTS, ANATOMISTS AND HISTOLOGISTS.
1922–*date*. Proceedings.

CONGRESSO DEI NATURALISTI ITALIANI. *Milan.*
1906?–7? Atti.

CONNECTICUT ACADEMY OF ARTS AND SCIENCES. *New Haven.*
1818–65. Memoirs. (Published in American Journal of Science.)

1866–1909. Memoirs. (Published in Transactions.)

1866–*date*. Transactions.

CONRAD (VON MEGENBERG) [1309–78]. *See* VON MEGENBERG KONRAD.

CONSTANTINUS, AFRICANUS [d. 1087].
1560. ΖΩΟΤΡΟΦΕΙΟΝ; seu, Leporarium, quorundam animaliũ quadrupedum & auicularum continens naturas as proprietates, rem medicam concernentes; per Georgium Pictorium . . . accedit Constantini Africani . . . de animalibus elegantissimus liber, & Lippii Collēsis, Oppiani poetae Halieuticon, sive de piscibus tractatus, scholiis eiusdem Georgii Pictorii Villingani breuiter admodum illustratus. *pp. 58+2.* *Basileae.*

An account of the natural history writings of Constantinus Africanus will be found in the last edition of the *Encyclopaedia Britannica*, vol. 27.

(**THE**) **CONTEMPORARY SCIENCE SERIES.** Edited by Havelock Ellis.
1893. The industries of animals, &c. *See* HOUSSAY, F.

1899. The history of the European fauna. *See* SCHARFF, R. F.

CONTRAFACTEUR ALLER VIERFÜSSIGEN THIER-EYGENTLICHE UND GANTZ ARTLICHE CONTRAFACTEUR. *See* ANONYMOUS, 1551.

CONTRERAS, MARCEL DE.
1905. Les oiseaux observés en Belgique. *8vo. pp. xvi+389. cuts in text. 1 col. pl. T. of c. index.* *Bruxelles.*

The first of a two-volume treatise on Belgian birds, well written but poorly illustrated. A second volume was issued in 1907.

CONTRIBUTIONS TO AMERICAN ORNITHOLOGY.
Vol. I, Oct. 1901–May 1902. *pp. 1–32.* (All issued?) *Longwood, Mass.*

CONTRIBUTIONS OF THE BAYLOR UNIVERSITY MUSEUM.
1928. No. 11. Birds and Snakeskins by J. K. Strecker.

CONTRIBUTIONS OF THE CHARLESTON MUSEUM, CHARLESTON, S.C. **1910**–*date*.

CONTRIBUTIONS À LA FAUNE DES INDES NÉERLANDAISES.
1914–18. Continued as Treubia.

CONTRIBUTIONS TO NORTH AMERICAN ORNITHOLOGY.
1901–4. 9 parts (all issued).

CONTRIBUTIONS TO ORNITHOLOGY.
1848–52. A Year-Book, edited by Sir Wm. Jardine, with 103 hand-coloured plates of Birds and their Nests and Eggs. *5 vols. 8vo.* *Edinburgh (and London).*

[Vol. I] July 1848. Articles irregularly and separately paged. *pp. 58. 8 col. and 2 plain illust. T. of c.* Three parts were issued in 1848. *Edinburgh and London.*

[Vol. II] 1849. Contributions separately and irregularly paged. *pp. 138. 25 col. and 2 plain pl.* Seven parts issued in this year.

[Vol. III] 1850. Similar to foregoing, only more numerous articles. *pp. 153. 20 col. pl. 3 woodcuts. T. of c.* Seven parts issued during 1850.

[Vol. IV] 1851. Similar to foregoing; pagination more regular. *pp. 163. 15 col. and 2 plain pl. T. of c.* Six parts this year.

[Vol. V] 1852. Regular and continuous pagination. *pp. 162. 18 col. pl. 4 figs. T. of c.*

Reprint of 1860 (?). This edition is bound as two volumes text and plates. 'Contributions to Ornithology', 1848–52. The two volumes appear in detail as follows:

[Vol. I] Text (1860?). Pagination as in original. *T. of c. (viii pp.)* for years 1848–52. A few colored and plain cuts in text. Plates: 101 colored and black and white. *London.*

[Vol. II] Plates. These plates vary decidedly in coloration from the original. In the Br. Museum Nat. History Library copy, plate 67 is missing.

This Annual, constituting the earliest British periodical on ornithology, contains papers by many of the older ornithologists—Gould, Eyton, Blyth, Schlegel, Hartlaub, Sclater, Sir Wm. Jardine, Kaup, and others, on West African, South African, Indian, and South American birds, and is beautifully illustrated by numerous colored and plain plates. The chief contribution, however, is that of the Editor of a review of ornithological literature and progress for the previous year.

CONTRIBUTIONS TO SCIENCE. By CHAS. J. MAYNARD.
1889–96. Vols. I–III. *8vo. illust. Newtonville, Mass.*

COOK, ALBERT JOHN [1842–1916].
1893. Birds of Michigan. 2nd ed. *8vo. pp. 168. illust.* (Michigan Agric. College, Bulletin 94.) *Lansing.*

In the edition issued in April 1893, there are only 11 text-figures and 148 pages of letterpress.

← Conklin, Edwin Grant. 1931. A Synopsis of the General Morphology of Animals. 29 figs., 11 tab (1 fold.). Princeton, N.J.

→ Cooke, M.C. 1887. British Uredinids. 8vo. pp. xiv, 205. 66 col. pls.

→ Cooke, M.T. 1929. Birds of the Washington D.C. region

~~[illegible]~~ 79 pp., octavo, paper, 1929.

COOK, *Capt.* JAMES [1728–79].

1775. Journal of the Resolution's voyage in 1772, 1773, 1774, and 1775 . . . discovery to the southern hemisphere, by which the non-existence of an undiscovered continent, between the equator and the 50th degree of southern latitude, is demonstratively proved. Also a journal of the Adventure's voyage, in the years 1772, 1773, and 1774. With an account of the separation of the two ships, and the most remarkable incidents that befell each. *pp. xiv+328. front. (map fold.). 5 pl.* *London.*

The first edition of this famous navigator's second voyage round the world. References to birds: albatrosses, petrels, penguins, gannets, tropic, and man-of-war birds. Other editions appeared, 1777, 1784, 1808–9, and 1821.

1777. A voyage towards the south pole, and round the world. Performed in His Majesty's ships the Resolution and Adventure, in the years, 1772, 1773, 1774, and 1775. *2 vols. 4to. T. of c.* Vol. II, *pp. (8)+396. 20 pl. (11 fold.). 7 maps (3 fold.). 3 figs. T. of c.* *London.*

An enlarged and illustrated edition (2nd voyage) of the original (1775). References to birds are numerous throughout both volumes, there being an illustration and description in this edition of the Poe-bird of New Zealand, as well as others not mentioned in the first edition.

1784. A voyage towards the South Pole, and round the world. Vol. I, *pp. (4)+xxv+372. T. of c.* Vol. II, *pp. (8)+392. 3 figs. T. of c. vocab.* *Dublin.*

A smaller edition (8vo) of the larger 4to edition of 1777, without the illustrations.

1799. [Facsimile of that part of the Log of the 'Resolution' written by Henry Roberts, Mate, who was in charge of the Pinnace in which Capt. Cook went ashore for the last time, to be killed by the natives of what is now Hawaii. Roberts was an eyewitness of the tragedy.] *super-folio. pp. 2. map.*

One of 50 copies published by Francis Edwards, who presented the copy in hand to the E.S.W. Library of Ornithology.

1808–9. Voyages round the world. The first, 1768–71; the second, 1772–75; the third and last, 1776–80; for making discoveries in the northern and southern hemispheres. *3 vols. 8vo.* Vol. I. (Wanting.) Vol. II, *pp. 516. 5 pl.* Vol. III, *pp. 495+(1). 11 pl.* *Glasgow.*

Contains an account of the first, second, and third voyages.

1821. The three voyages of Capt. James Cook round the world. Map and other plates. *7 vols. 8vo.* Vol. I, *pp. xii+398. front. (portr.). 5 pl. 1 map (fold.). T. of c.* Vol. II, *pp. vii+(1)+368. front. T. of c.* Vol. III, *pp. vii+(1)+372. front. 3 pl. T. of c.* Vol. IV, *pp. viii+304+(1 fold.). front. 2 pl. T. of c. vocab.* Vol. V, *pp. vii+(1)+472. front. 1 pl. T. of c.* Vol. VI, *pp. viii+503. front. 5 pl. T. of c.* Vol. VII, *pp. xi+(1)+462+(1 fold.). front. 2 pl. T. of c. append.* *London.*

A complete account of the three voyages; Vols. 1–2 containing that of the first, vols. 3–4 that of the second, and vols. 5–7 that of the third voyage. References to birds occur throughout all seven volumes, but without the illustration of the Poe-bird contained in the edition of 1777.

COOKE, ARTHUR O.

1920. A book of dovecotes. *8vo. preface. pp. 16+286+8. col. front. 3 col. pl and 41 figs. in text. T. of c. index.* *London.*

A very useful and interesting account of *Columbaria*, ancient and modern, in the British Isles, and to some extent on the Continent.

COOKE, EDWARD WILLIAM [1811–80].

1872. Entwickelungsgeschichte. Grotesque animals invented, drawn, and described. *4to. pp. vi+24. 24 pl.* *London.*

A series of Grotesques of animal forms invented by the author (suitable for ecclesiastic and other types of architecture).

COOKE, MAY THACHER.

1923. Report on bird censuses in the United States 1916 to 1920. United States Department of Agriculture. Department Bulletin no. 1165. *8vo. pp. 36. 1 fig. (map). T. of c.* *Washington.*

Definite information regarding the number, distribution, and relative abundance of the breeding birds of the United States, with map showing the localities from which reports on bird censuses were received for the five years 1916–20.

COOKE, MORDECAI CUBITT [1825–96].

1893. Our reptiles and batrachians . . . with MS. notes by H. Kirke Swann loosely inserted.

COOKE, THOMAS.

1823. A Letter to Mark Milbank . . . Whistling Swan, etc. *folio. pp. 12. 2 pl.* *London.*

COOKE, WELLS WOODBRIDGE [1858–1916] and **WIDMAN,** O.

1884. Bird migration in the Mississippi valley. *8vo. pp. 37.* *New York.*

1888. Report on bird migration in the Mississippi valley in the years 1884–85; ed. and rev. by C. H. Merriam. U.S. Department of Agriculture. Division of Economic Ornithology. Bulletin no. 2. *8vo. pp. 313. map (col. fold.). T. of c. index.* *Washington.*

The present Report consists of two parts: (I) an introductory portion treating of the history and methods of the work, together with a general study of the subject of Bird Migration: (II) a systematic portion in which the 560 species of birds known to occur in the Mississippi Valley are treated serially, the movements of each during the seasons of 1884 and 1885 being traced with as much exactness as the records furnished by the 170 observers in the district permit.

1897–1900. The Birds of Colorado. *3 vols. 8vo. pp. 143. bibliogr. index.* *Fort Collins.*

An annotated list of the birds of the State, based on all available records. A detailed bibliography is also included, pp. 20–39. Supplements to this list were published later as Bulletins Nos. 44 and 56 of the Agricultural Station, 'Further Notes on the Birds of Colorado', 1898, and 'A second Appendix', 1900, with which the present copy is bound.

1898. Further notes on the birds of Colorado. *8vo. pp. 3+148–76. bibliogr. index.* *Fort Collins.*

Supplementary notes and additions to the original paper on *The Birds of Colorado*, 1897, published as Bulletin No. 37 of the Agricultural Station.

1900. The birds of Colorado. A second appendix to bulletin no. 37. *8vo. pp. (2)+179–239. bibliogr. index.* *Fort Collins.*

A second appendix to Bulletin 37 of the Agricultural Station, bringing the subject to date.

1906. Distribution and migration of North American ducks, geese, and swans. *8vo. pp. 90. T. of c. index.* *Washington.*

This report furnishes information as to present range, abundance, and migration of the several species, to be used in legislation for their preservation. Author's excerpt from *Bull. No. 28, Biol. Survey.*

1910. Distribution and migration of North American shorebirds. *8vo. pp. 100. pl.* (U.S. Dept. of agriculture. Biological survey. Bulletin no. 34.) *Washington.*

This Government *Bulletin* is illustrated with drawings made by Louis A. Fuertes.

[**COOKE**, W. W. (*contd.*)]

[**1914**]. Our greatest travelers, &c. *8vo. illust. Washington.*

Reprinted from the *Nat. Geog. Magazine.*

1915. Bird migration. *8vo. pp. 47+(1). 4 pl. 20 figs. (maps). T. of c. Washington.*

New edition of a similar pamphlet, *Some New Facts about the Migration of Birds*, 1903, only that the present one is much fuller and replete with additional information.

1915. Distribution and migration of North American gulls and their allies. *8vo. pp. 70+(1). 31 figs. (28 maps). T. of c. index. Washington.*

An annotated list of the species, with maps showing their distribution, migration, and breeding ranges, preceded by notes on their economic importance, protection, etc.

1917. The warblers of North America. *See* CHAPMAN, F. M.

[**1918**]. The mysteries of bird migration (National geographic society: The book of birds).

COOPER, JAMES GRAHAM [1830–1902] and **SUCKLEY,** GEORGE.

1855–9. The natural history of Washington Territory, with much relating to Minnesota, Nebraska, Kansas, Oregon, and California. Catalogues and descriptions of the plants and animals collected from 1853 to 1857. *3 pts. in 1 vol. folio. 66 pl. (partly col.). map. Washington.*

'This volume consists of those parts of the [twelfth vol.] of the Pacific railroad reports, which describe the natural condition of the country traversed by the surveying expedition near the 47th and 49th parallels of latitude . . . None of the plates in this volume have been before published.'—Pref. *See also* SUCKLEY, GEORGE.

**** and **BAIRD,** SPENCER FULLERTON.

1870. Ornithology of California. (Geological Survey of California.) Ornithology. Vol. I. Land Birds. Edited by S. F. Baird, from the manuscript and notes of J. G. Cooper. *4to. pp. xi+(1)+592. 663 figs. (1 diagr.). T. of c. append. glossary. 2 indexes. Cambridge, Mass.*

A report on the birds of California prepared by Cooper from his own field-work and notes, and submitted to Baird for revision and publication. Baird added considerable matter, which appears over his signature, in addition to the technical descriptions which were taken, principally, from Baird, Cassin, and Lawrence's *The Birds of North America*, 1860. The general accounts, except where signed otherwise, are from the pen of Cooper. Vol. II was to have comprised a similar volume on the water birds, but was replaced by the two volumes of Baird, Brewer, and Ridgway on *The Water Birds of North America*, 1884.

Bound in with this copy is a manuscript note from the Compiler stating that this work was considered to be out of print and scarce until some hundred or more unbound copies were discovered on the premises of the University of California Press, which were assembled and placed on sale for the use of students, some of the copies being defective, in that the introduction was missing, but this is not essential to students. The Compiler, in the same note, records the fact that a few copies were issued with the heads of the birds handcolored, but that he had never seen one, nor could he discover who did the coloring. Attached also to this library copy is a postal card from Cooper dated August 22, 1878, to Ruthven Deane, in reference to the nests and eggs of certain birds.

It may here also be noted that *The Wealth of California*, by Cronise (q.v.), contains a section on birds taken from Cooper's treatise.

COOPER, J. W.

[**1869**]. Game fowls, their origin and history, with a description of the breeds. *8vo. pp. 304. front. (col.). 1 pl. (col.). T. of c. index. West Chester, Pa.*

An enlarged printing of the author's small pocket edition, for the use of Game Fanciers and Cockers.

COOPER, S. F.

1851. Rural hours. 4th ed. *New York.*

A popular work on natural history.

COOPER, SARAH.

1887. Animal life in the sea and on the land. A zoology for young people. *8vo. pp. xiii+(1)+413. front. illust. 278 figs. T. of c. index. New York.*

COOPER ORNITHOLOGICAL CLUB. *See* CONDOR; *also* BULLETIN OF THE COOPER ORNITHOLOGICAL CLUB; OSPREY, and PACIFIC COAST AVIFAUNA.

1926. First Annual meeting. Report. *8vo. pp. 4. Los Angeles.*

The dates of the meetings are fixed at the opposite end of the calendar from that of the A.O.U. meeting so as to avoid any possible conflict, while it is also the time at which south-western bird life is at its best.

1926. Report of an exhibition of paintings of American bird artists assembled by the Cooper ornithological club. *8vo. pp. (46). 16 figs.*

An illustrated catalogue of the drawings and paintings exhibited by various artists, with brief accounts of their lives.

COPE, EDWARD DRINKER [1840–97].

1865. Sketch of the primary groups of *Batrachia salientia. 8vo. pp. 24.*

Author's reprint from the *Natural History Review*, Jan. 1865.

1868. *See* AMERICAN NATURALIST.

1869. On the origin of genera. *8vo. pp. 80.* Proc. Acad. Nat. Sciences. Presentation copy from author. *Philadelphia.*

1869. *See* BAILY, WILLIAM L.

1873–90. *See* UNITED STATES. SURVEY TERRITORIES.

1874–89. *See* UNITED STATES. HUNDREDTH MERIDIAN.

1880. On the zoological position of Texas. *8vo. pp. (4)+51. T. of c. index. Washington.*

The twentieth of a series of papers intended to illustrate the collections of natural history and ethnology belonging to the United States, and constituting the National Museum. There are a few notes on the birds on p. 12, the most interesting being on the chaparral cock (*Geococcyx viaticus*).

1885. *See* KINGSLEY, J. S., *ed.*

1886. An Analytical Table of the Genera of Snakes. *8vo. pp. 21. Phila.*

A valuable but brief pamphlet and author's reprint.

1896. The Geographical Distribution of Batrachia and Reptilia in North America. *8vo. pp. 40.*

Author's reprint of a classic from the *American Naturalist.*

1896. The Primary Factors of Organic Evolution. *8vo. pp. 16+547. Illust. Chicago.*

In this volume of his collected essays the author's theories on vertebrate paleontology are fully discussed.

1898. Syllabus of lectures on the vertebrata. *4to. pp. 36+135. portr. pl. Phila.*

1900. Crocodilians, Lizards and Snakes. *Wash.*

A fundamental treatise by a fluent writer and famous authority.

COPEIA. (Organ American Society Ichthyologists and Herpetologists.) **1913**–*date. New York.*

The Jan., 1931, number is entirely devoted to celebrating the eightieth birthday of David Starr Jordan.

COPENHAGEN.

1790–1810. Naturhistorie-Selskab. Vols. I–VI (all pub.).

Copeland · Charles. 1902 Tourt of the air. Illust': 8vo. ~~1902~~.

→ Lomide, Joseph. 1788. Ensayo de una historia de los peces y otras producciones marinas de la costa de Galicia, arreglado al sistema del caballero Carlos Linneo. Con un tratado de las diversas pescas, y de las redes y aparejos con que se practican.

COPENHAGEN. K. Dansk Videnskabernes Selskab.
1816, (1837), 1842–*date*. Oversigt over det . . . Forhandlinger, etc. *8vo.* (17 vols. to 1907). *Kjøbenhavn.*

1907–*date*. Naturhistorisk Forening. Danmarks Fauna; illustrerede Haandbøger over den danske Dyreverden. Nos. 1–27 (1907–24). *illust. maps.*

COPENHAGEN UNIVERSITAT. Zoologiske Museum.
1917–*date*. Publikationer.

COPINEAU, ABBÉ (18th cent.).
1780. Ornithotrophie artificiele; ou, Art de faire éclore & élever la volaille par le moyen d'une chaleur artificiele. *16mo. pp. 514+x+(4). 4 pl. (fold.). T. of c.* *Paris.*
On the art of incubating fowls' eggs by artificial heat.

COPINGER, W. A.
1926. Supplement to Hain's Repertorium Bibliographicum. *4 pts. in 2 vols.* *Berlin.*
A well-known and very valuable aid to the bibliographer.

COQUILLE, LA, VOYAGE OF. *See* DUPERREY, LOUIS ISIDORE, 1826–30.

CORDEAUX, JOHN [1830?–99].
1897. Anseres. *See* BUTLER, A. G. British birds, &c. Vol. IV.

****** and others.**
1880–7. Report on the migration of birds in . . . 1879–86. *See* BROWN-HARVIE, J. A.

CORDIER, ALBERT HAWES [1859–].
1923. Birds, their photographs and home life. 145 photo. *8vo. pp. (6)+(16)+17–247. front. 72 pl. T. of c. index.* *Phila.*
A popular account of 85 species of American birds, with instructions for photographing them. Inserted is a letter dated June 18, 1924, from the author to the late Dr. H. Gifford of Omaha, Neb.

CORMACK, W. E.
1928. Narrative of a journey across . . . Newfoundland in 1822. Ed. by F. A. Bruton. *12mo. pp. 138. map. illust.* *London.*
Mostly on natural history, with pictures of flora and fauna and a good description of both. The author was among the earliest explorers of the island.

CORNALIA, EMILIO [1824–82].
1849. Vertebratorum Synopsis in Museo Mediolanense, etc. *4to. pp. 16. 1 pl.* *Mediolani.*

1870–4. Fauna d'Italia. *4 pts. 4to.* *Milan.*
A fine example of a local natural history. The author wrote the articles on mammals; T. Salvadori, the birds; G. Canestrini on the fishes; and E. de Betta, the reptiles and amphibia.

CORNEAU, NAPOLEON A.
1923. Life and Sport . . . of the Lower St. Lawrence. Introd. by E. T. D. Chambers. *8vo. pp. 440. illust.* *Quebec.*
This interesting work contains notes by the author on the flora and fauna of northern Canada, as well as a list of 208 species of Birds by C. Hart Merriam. The volume seems to be little known as it is not listed in the *Cat. Br. Mus. (Nat. Hist.).*

CORNELIUS, CARL.
1865. Die Zug- und Wander-Thiere aller Thierklassen. *8vo. pp. viii+341.* (Wanting.) *Berlin.*

CORNELL UNIVERSITY.
1899–1901. Cornell nature-study [quarterly] bulletin; issued by the College of agriculture and Experiment station. Nos. 1–9. *1 vol. 8vo. illust.* *Ithaca.*

CORNISH, CHARLES JOHN [1859–1906].
1895. Life at the Zoo. 2nd ed. *pp. vi+(2)+340. front. 15 pl. T. of c.* *London.*
Some of these chapters originally appeared in the *Spectator*, and with the others present a fair picture of the famous menagerie in Regent's Park. References to birds occur throughout the volume.

[1895]. Wild England of to-day and the wild life in it. 2nd ed. *8vo. pp. xiii+(3)+310. front. 15 pl. T. of c.* *London.*
Most of the text appeared in the *Spectator*. Birds figure very largely throughout the volume. The first edition appeared also in 1895.

1896. Animals at work and play, their activities and emotions. *8vo. pp. 12+323. pl.* *London.*
An unusual, interesting, and careful study of the psychology of some phases of animal life.

1898. Animals of To-day, etc. *8vo.* *London.*

[1901–2]. The Living Animals of the World; a popular Natural History. 1st ed. *2 vols. 4to. col. illust.* *London.*
A very good popular work that includes excellent chapters on the vertebrata, mammals (mostly) by F. C. Selous; birds by W. P. Pycraft; reptiles and amphibia by W. Saville-Kent; fishes (chiefly) by W. P. Pycraft. Several translations and printings have been published. The McGill libraries have most of these, including an English edition dated (1914).

1902. The naturalist on the Thames. *8vo. pp. viii +260. front. 22 pl. T. of c.* *London.*
A commentary on the natural history and character of the valley as a whole, from the upper waters to the mouth.

1903. De levande djuren på jorden. Populära skildringar från livet i naturen. Övers. o. delvis bearb. av L. Gabr. Andersson. *2 vols. 4to. pp. 806. 1,153 illust. 25 col. pl.*
This edition of a popular, scientific treatise on natural history has been translated and revised by L. G. Andersson and further illustrated with photographic reproductions.

1903. The People's Natural History, etc. *5 vols. 2,000 illust.* *New York.*

1917. Birds of other lands, reptiles, fishes, jointed animals and lower forms; editors and special contributors, Charles J. Cornish, Sir Herbert Maxwell . . . and many others. *New York.*
A popular treatise on general zoology.

1917. Mammals of other lands; by other editors and special contributors. *New York.*

n.d. Animaux Vivants du Monde. *2 vols. 4to. illust. col. pl.* *Paris.*
A French (abridged) edition of the author's *Living Animals of the World.*

CORNISH, W. F.
1837. Observations on the Habits of Exotic Birds, etc. *1 vol. 16mo.* (Wanting.) *Exeter.*

CORRESPONDENZA ZOOLOGICA. 1839. *Naples.*

CORWIN, VOYAGE OF THE. Voyage to Alaska. *See* UNITED STATES, 1883.

CORY, CHARLES BARNEY [1857–1921].

1878. A naturalist in the Magdalen Islands; giving a description of the islands and list of the birds taken there, with other ornithological notes. *8vo. pp. iv+(2)+7–93. front. 1 pl. 1 fig. T. of c. append. index.* *Boston.*

The first five chapters contain a short account of the islands, with the author's experiences thereon, followed by a catalogue of the birds taken or observed. The appendix contains a list of hypothetical species.

1880. Birds of the Bahama Islands; containing many birds new to the islands, and a number of undescribed winter plumages of North American species. *8vo. pp. 250. front. 7 pl. illust. T. of c. append. index.* *Boston.*

A popular account of 149 species. The appendix contains a further list of 36 species not recorded from the Bahama islands but which might occur there. A copy of the same date in the *Ayer Catalogue* has colored plates, but in the one under notice they are plain. A revised edition was issued in 1890.

1880–3. Beautiful and curious birds of the world. *double el. folio. 20 col. pl. index.* Published in 7 pts. Edition limited to two hundred copies. *Boston.*

This is a collection of 20 fine, hand-colored plates, eight of them by J. Smit, with descriptive text. The portrait of the Great Auk is the picture that has for many years adorned the cover of the *Auk*. Other curious portraits are those of the Dodo, Lyre Bird, Spotted Bower Bird, and several Birds of Paradise.

1885. The birds of Haiti and San Domingo. *4to. pp. (3)+8–198. front. (map). 22 pl. (col.). 10 figs. T. of c. 2 indexes.* *Boston.*

Issued in four parts according to the wrappers bound in at the end of the volume, pts. I–III dated 1884, and pt. IV, 1885. A monograph of the birds of the islands of Haiti and San Domingo, with synonymy, description of plumages, and notes on each of the species.

1886. A list of the birds of the West Indies, including the Bahama Islands, and the Greater and Lesser Antilles, excepting the islands of Tobago and Trinidad. Revised ed. *folio. 2 pr. ll. +5–34 ll.+1 (printed one side only). append. index.* *Boston.*

Similar to the author's work of the same title, 1885. The species are not numbered in this edition and the list is printed on one side of the paper only. It is said that nearly the whole of the present issue was destroyed by fire, and is, consequently, very rare.

1887. Descriptions of six supposed new species of birds from the islands of old Providence and St. Andrews, Caribbean sea. A list of the birds taken by Mr. Robert Henderson, in the islands of Old Providence and St. Andrews, Caribbean Sea, during the winter of 1886–87. *8vo. pp. (2)+177–81.* [*New York.*]

Author's edition, *Auk*, July 1887, 250 copies.

1887. Description of a new species of rhamphocinclus from St. Lucia, West Indies. Author's edition. (From the *Auk*, vol. IV, no. 2, April 1887.) *8vo. pp. 94–6.*

1889. The birds of the West Indies. Including all species known to occur in the Bahama Islands, the Greater Antilles, the Caymans, and the Lesser Antilles, excepting the islands of Tobago and Trinidad. *8vo. pp. (2)+324. 2 pl. (maps). 19 figs. bibliogr. append. index.* *Boston.*

Most of the matter contained in the present work, as well as some of the drawings, appeared in the *Auk* for 1886, 1887, and 1888. Descriptions of new species since added to the West Indian avifauna, which were either new to science or had not previously been recorded from that locality, are given in the appendix, unless included in their proper order in the body of the work. A number of alterations and corrections have been made in the original plates, and several new illustrations have been added. The volume in hand is a presentation copy, from Col. H. W. Feilden's library.

1890. The birds of the Bahama Islands. Containing many birds new to the Islands, and a number of undescribed winter plumages of North American birds. Revised ed. *4to. pp. (2)+24+9–250. front. 8 pl. T. of c. bibliogr. append. index.* *Boston.*

The present edition (with eight colored plates) differs from that of 1880 in having a new title-page, as well as 16 pages of additional text.

1892. Catalogue of West Indian birds, containing a list of all species known to occur in the Bahama Islands, the Greater Antilles, the Caymans, and the Lesser Antilles, excepting the islands of Tobago and Trinidad. *8vo. pp. 163. 1 map (fold.). T. of c. bibliogr. append. 2 indexes.* *Boston.*

A list of species with their distribution given in tables, followed by a complete bibliography of ornithological publications relating to the West Indies.

1896. A list of the birds of Florida. *8vo. pp. 24.* *Boston.*

A simple list of 352 species and subspecies, with scientific and vernacular names.

1896. Key to the water birds of Florida. *8vo. pp. 172. 2 pl. (diagr.). 240 figs. glossary. 2 indexes.* *Boston.*

A popular Key for identifying with comparative ease any species of the Florida water birds.

1897. How to know the ducks, geese and swans of North America, all the species being grouped according to size and color. *8vo. 23½×18½ cm. pp. 95. front. illust. 138 figs. in text. T. of c. index* *Boston.*

A systematic handbook on the subject, with an identification key.

1897. How to know the shore birds (*Limicolæ*) of North America (south of Greenland and Alaska) all the species being grouped according to size and color. *8vo. 23×18 cm. front. illust. 178 figs. in text. T. of c. index.* *Boston.*

A most useful systematic catalogue of North American shore birds arranged for identification, for which a practical purpose key is provided, mostly based on the size of the species.

1899. The birds of eastern North America known to occur east of the nineteenth meridian. Water Birds, part I. Land Birds, part II. Key to the families and species. Special edition printed for the Field Columbian Museum, Chicago. *2 vols. 8vo. illust.* Vol. 1, *pp. (4)+iii–ix+(1)+142. 532 figs. T. of c. glossary. index.* Vol. 2, *pp. ix+(1)+131–387 front. (diagr.). 722 figs. T. of c. Chicago.*

1909. The birds of Illinois and Wisconsin. *8vo. pp. 764+(3). 1,260 figs. 1 map. T. of c. glossary. bibliogr. index.* Field Museum of Natural History. Publication 131. Zoological series. Vol. IX. *Chicago.*

An illustrated Manual describing 398 birds of Illinois and Wisconsin.

1909. Birds of the Leeward Islands. *pp. 56.* (Field Museum. Pub. No. 137.) *Chicago.*

1912. The mammals of Illinois and Wisconsin. *Chicago.*

****** and HELLMAYR,** CARL E.

1918–30. Catalogue of the birds of the Americas, and the adjacent islands. *2 vols. 4to.* (Field Mus. Nat. Hist. Publications. Zoological Series. Vol. XIII. *pp. 607.*) *index to vols.* *Chicago.*

This extensive work (to be completed in eight volumes), begun by the late Charles B. Cory and continued by Carl Edward Hellmayr, includes 'all species and subspecies known to occur in North America, Mexico Central America, South America, the West Indies, and other

1896. A list of the Birds of Eastern North America. Octavo, 42 pp.
Privately printed 1896. Boston.

1900. The Birds of Eastern North America. Water Birds. With key to the
family and species. Sm. quarto, pp 142. Boston.

1900 The Birds of Eastern North America. Land Birds. With key to the
family and species. Sm. quarto, pp 200. Boston.

→Coste, M. 1856. Instructions pratiques sur la pisciculture. 2d ed. 144 p. Paris.

Oct 28/31.

DR. CASEY WOOD,
ZOOLOGICAL LIBRARY,
BRITISH MUSEUM, (NATURAL HISTORY),
CROMWELL ROAD,
LONDON, S.W. 7.

Memo. for
Miss Hanington.

Please note that after Nov 2/31 my address (from Canada) will be

Dr. Casey Wood
General Post office
Pasadena, Calif. U.S.A.

If this edition is not in the library pls. order it (less 10%)
from R. Atkinson, 188 Peckham Rye, London. S.E.

In

697 **Ichthyology.** — Couch (Jonathan) A History of the Fishes of the British Islands. 252 *col'd plts.*, 4 vols, roy., 8vo, hf. cf. gt. (binding slightly rubbed), 1864-9 £1/10/-

+Pls. return this sheet to me with action marked on it+

islands which may be included on account of their faunal affinities'. The first number treats of 11 families, the second, seven families. These volumes have each a colored frontispiece but are otherwise not illustrated. In the synonymies references are mostly confined to original descriptions with type localities.

COSSMAN, Alexandre Édouard Maurice [1850–1924].

1901. Additions à la faune nummulitique d'Égypte. *8vo. pp. 27+3 pl.* (Institut égyptien.) *Le Caire.*

COSTA, Emanuel Mendes da [1717–91].

1757. A natural history of fossils. Vol. I, pt. 1 (all pub.). *4to. pp. 8+294. 1 pl. London.*

COSTA, Oronzio Gabrielle [1787–1867].

1857. Fauna di Regno di Napoli. *119 fascicoli. 382 col. pl. Napoli.*

An excellent account of the animal kingdom as found in the middle of the nineteenth century in Southern Italy. Those fascicles that treat of individual subclasses are occasionally for sale bound separately. The complete work is rare.

1857. Fauna del Regno di Napoli ossia enumerazione di tutti gli animali . . . contenente la descrizione de' nuovi o poco esattamente conosciuti. *Uccelli. 2 pts. in 1 vol. 4to.* Pt. I, *pp. (4)+vi+7–88.* Pt. II, *pp. 66+(2). 15 pl. (col.). 3 indexes. Napoli.*

The ornithological portion of the author's larger work on the fauna of the Province of Naples, Italy. Part I contains a systematic catalogue of species, whilst part II gives detailed descriptions of certain noteworthy species. The work was spread over a number of years, the preface to the present portion being dated 1839, whilst the title-page bears the date of 1857. In the preface to part II, p. 5, mention is made of an intended third part, which probably never appeared, as no other reference can be found to it.

COTES, H.

1821. A history of British birds. Vol. 2. Water birds. [The text by H. Cotes.] *See* BEWICK, T.

COTTEREAU, Elie (*Abbé*).

1919. Les oiseaux observés dans l'arrondissement de Saint-Calais. *8vo. pp. 49. 1 col. pl. index. Saint-Calais.*

A short descriptive list of local birds, with a preface by A. Ménégaux, intended to act as a guide to the ornithological museum of the municipality of Saint-Calais in the Dept. of the Sarthe, France.

COTTESWOLD NATURALISTS' FIELD CLUB, GLOUCESTER.

1847/53–*date.* Proceedings.

COTTON, John.

1835. The resident song birds of Great Britain; with a short account of their general habits. *8vo. pp. 76. 17 pl. (col.). London.*

A popular account of 17 well-known British singing birds, the present publication to form part of a volume on the *Song Birds of Great Britain.*

1836. The Song Birds of Great Britain. *8vo. 33 col. pl. London.*

A very rare treatise in its complete form. Not listed in the *Cat. Br. Mus. (Nat. Hist.).*

**** and **TYAS,** R. [1811–79] and **ANDREWS,** James.

1854–6. Beautiful birds: their natural history; including an account of their structure, habits, nidification, etc. *8vo. 12 col. pl. London.*

This small work appeared in 36 monthly parts, separately paged. It has 12 colored plates and numerous text cuts, and forms one of a large class of popular books on bird life. It was edited by R. Tyas from the late author's manuscript and illustrated by James Andrews.

1854–6. Beautiful birds described, etc. *3 vols. in 1. 12mo. illust. London.*

Issued by another publisher this printing differs from the original edition with colored plates in having a slightly different title and uncolored illustrations.

COUAILHAC, J. J. L., **GERVAIS,** F. L. P., and **LEMAOUT,** E.

1842–3. Le Jardin des Plantes. *See* BERNARD, PIERRE.

COUCH, Jonathan [1789–1870].

1838–44. A Cornish fauna; being a compendium of the natural history of the county, intended to form a companion to the collection in the museum of the Royal Institution of Cornwall. *3 vols. 8vo.* Vol. I, *pp. vi+5–84.* Vol. II, *pp. viii+76.* Vol. III, *pp. viii+xi–xvii+(1)+164+(8). 23 pl. indexes. Truro.*

In this important work the class Aves are treated in vol. I, pp. 10–30, the annotated list embracing 231 species, none of which, however, are figured in the 23 plates supplied to vol. III.

1847. Illustrations of instinct deduced from the habits of British animals. *8vo. pp. xii+343. T. of c. index. London.*

It is said that in his actions Man is governed by Reason, as Animals are by Instinct; the latter principle being represented as an unreflecting impulse, which, under all circumstances, 'must go right'. In consequence of this mode of regarding the subject many striking displays of intelligent action among animals have been passed over with little or no attention. The object of the author of this book is to try and afford by illustrations a different estimate of the animal creation and the conditions of their intellectual existence.

1862–5. A history of the fishes of the British Islands. *4 vols. illust. 252 col. pl. (incl. fronts.). London.*

The first edition of this celebrated work.

1866–7. A History of the Fishes of the British Islands. 252 col. pl. by the author. *4 vols. Editio altera. London.*

A remarkable production by a medical practitioner with little leisure and laboring under the necessities of a large country practice. This work is regarded as one of the fundamental contributions to British ichthyology. Couch was also a well-known writer on archeology and other departments of natural history. [O.]

1877. History of the Fishes of the British Islands. 252 full-page col. pl. from drawings by the author. *4 vols. 8vo. London.*

The latest printing of a well-known treatise.

COUCH, Thomas Quiller [1826–84].

1871. The History of Polperro, etc. *8vo. Truro.*

In this Cornish guide-book the natural history is given. Most of the treatise is said to have been written by Jonathan Couch, a brief account of whose career is furnished. From the Osler Library.

COUDENHOVE, Hans.

[*c.* **1925**]. My African neighbours; man, bird, and beast in Nyasaland. *8vo. pp. xiv+245. front. (portr.). 7 pl. T. of c. London.*

COUES, Elliott [1842–99].

[**1862**]. [Monograph of the Laridae.] Revision of the gulls of North America; based upon specimens in the Museum of the Smithsonian Institution.

Stated to be 'an abstract of a more extended Monograph on the Gulls of North America, prepared for publication in a Government Report'. The 'Monograph' appeared in 1874 as a part of the *Birds of the Northwest* (pp. 589–717). The present copy is from the Godman Library, with book-plate.

1866. Prodrome of a work on the ornithology of Arizona Territory. *8vo. pp. 64. Phila.*

A preliminary list of 245 avian species from Fort Whipple, Arizona; with which are incorporated all other species ascertained to inhabit the territory; with brief critical and field notes, descriptions of new species, etc. Reprinted from the *Proceedings Phila. Acad. Nat. Sc.*

1868. A monograph of the Alcidae. *pp. 81. 18 figs. bibliogr. Philadelphia.*

One of 50 copies separately reprinted from *Proc. Acad. Nat. Sci.*

[**COUES,** E. (*contd.*)]

Phila., January 1868. I. Review of the literature of the family. II. Of the characters of the family, and its subdivisions. III. Descriptions of genera and species. Reprinted in *Zoologist*, v, 1870, pp. 2004 et seq. The present copy is from the Godman Library, with book-plate, being a presentation copy from the author to Prof. S. F. Baird.

1868. A list of the birds of New England. *Salem.*

[**1872**]. Material for a monograph of the Spheniscidae. (*Proc. Acad. Nat. Sci. Phila.*)

Based chiefly on the specimens in the Museums of the Smithsonian Institution, and of the Philadelphia Academy, the former being notable as containing T. R. Peale's types, and the latter the largest collection of Penguins in America. The copious synonymy gives nearly every name, generic or specific, which had at that time been proposed for this group of birds; and each species recognized by the author is fully described, with much critical matter. The present copy is from the Godman Library, being advance proof-sheets of the above paper, sent to the editor of *Ibis* with the author's regards.

1872. Key to North American birds, containing a concise account of every species of living and fossil bird at present known from the continent north of the Mexican and United States boundary. Illustrated by 6 steel plates, and upwards of 250 woodcuts. *4to. pp. (8)+361. front. 5 pl. 238 figs. T. of c. addend. glossary. index.* *Salem.*

Of this popular work there are five editions, the present copy being the first. The scientific accuracy of the author and general style of the book make it valuable as a work of reference.

1873–90. *See* UNITED STATES SURVEY OF TERRITORIES, 1873–90.

1873–4. A Check List of North American Birds. 1st ed. *8vo.*

1874. Field ornithology. Comprising a manual of instruction for procuring, preparing and preserving birds, and a check list of North American birds. *8vo. pp. iv+116+138. 1 fig. T. of c. append.* *Salem.*

Pp. 5–116 contain full instructions for the bird-collector, which information was intended for inclusion in the author's *Key to North American Birds*, 1872, but for want of space had to be omitted from the 1st edition. It was included in the 2nd (1884) and subsequent editions, as well as in the author's *Handbook of Field and General Ornithology*, 1890. The Check List and Supplement is identical with, and merely another form of that work of 1873–4. The present volume is an autographed presentation copy.

1874–89. *See* UNITED STATES. HUNDREDTH MERIDIAN.

1874. A history of North American birds. Land birds. [With tables and glossary by E. Coues.] *See* BAIRD, S. F.

1874. Ornithology of the Prybilov islands (based on H. W. Elliott's manuscripts and collections). *4to. pp. 242–77(?). 2 figs.*

At the head of the first page appears the following note, in the handwriting of the author: 'This is a complete set of proofs, as printed. Of the work of which this article forms part, only 125 copies were printed, owing it is believed, to a "wilful misunderstanding". Work not paged. Bound to open portfolio-wise; with numerous photographic illustrations, dated 1873, published Jan. or Feb. 1874.—E. C.'
Along the side of this sheet appears the following note: 'There is only one other separate copy of this article in existence.'
The present copy is from the Godman Library.

1874. Birds of the Northwest: a handbook of the ornithology of the region drained by the Missouri River and its tributaries. *8vo. pp. xi+(1)+791. append. index.* (Miscellaneous Pub. U.S. Geolog. Survey, No. 3.) *Washington.*

A comprehensive treatment of the subject, with extensive synonymies, distribution of the species, field notes on habits, and descriptions of new species, etc. Estes and Lauriat, in 1877, rebound and reissued 214 copies of the book, with a new title-page but otherwise unchanged, as *Birds of the Northwest*. The work was issued in December 1874 (Coues, *Bibl.*, 1st Instalment, p. 702), presumably after the publication of vol. III of Baird, Brewer, and Ridgway's *History of North American Birds, Land Birds*, 1874, which is quoted in the present work, although both appeared about the same time.

1875. Ornithology [of Kerguelen Island]. *8vo. pp. 10+51. index.* *Washington.*

The above is pt. 1 of Kidder, J. H., 'Contributions to the natural history of Kerguelen Island made in connection with the American Transit-of-Venus Expedition, 1874–75'. Twenty-one species of six families of birds are fully described by the author.

1875. Some account, critical, descriptive, and historical, of Zapus Hudsonius; and on the breeding-habits, nest, and eggs of the white-tailed ptarmigan, Lagopus leucurus. (Bulletin of the United States Geological and Geographical Survey of the Territories, second series, No. V.) *8vo. pp. 4+10.* *Washington.*

1875. *See* BAIRD, SPENCER FULLERTON.

1877. Notes on the Ornithology of the region about the source of the Red River of Texas. *See* MCCAULEY, C. A. H., 1877.

1877. Fur-bearing Animals; a monograph of North American Mustelidae, etc. *8vo. pp. xiv+348. 20 pl.*

1878. *See* SENNETT, GEORGE B.

1878–80. [Bibliography of ornithology.] *4 vols. 8vo.* Vols. 1–3. American ornithological bibliography. 4. Faunal publications relating to British birds. *Wash.*

Part I. Faunal publications relating to North America. Extract from *Misc. Pub. U.S. Geological Survey Terr.* 11, pp. 567–748, 1878. *indexes.*
Part II. Faunal publications relating to the rest of America. Extract from *Bull. U.S. Geol. and Geogr. Survey Terr.* 5, pp. 239–330, 1879.
Part III. Systematic publications relating to American species, arranged according to families. From the *Bull. U.S. Geol. and Geogr. Survey Terr.* 5, pp. 521–1072.
Part IV. Faunal publications relating to British birds. From *Proc. U.S. Nat. Museum*, 2, (1879), 1880.

Four parts only were published although other titles were intended to follow, for the completion of an annotated list of all published works on ornithology. A number of interesting interleaved and bound volumes of all the four parts are in the E.S.W. Library with an A. L. S. from the author in each.
The Compiler of this INTRODUCTION (*Auk*, April 1928) has published a 'Plea for the Continuation of Elliott Coues' Ornithological Bibliography' in which he was ably seconded by the Editor, Dr. Witmer Stone. In part the Compiler remarked:
'No one can consult any of the Instalments of Coues' Bibliography without a mental doffing of the hat to a truly great man. The years of patient drudgery involved in that tremendous undertaking seem to dissolve in the amazement excited by the universal exhibit of the author-compiler's scholarship and erudition. Had Coues lived and if conditions had been favorable, he would, doubtless, have carried to completion his ambitious scheme of a "Universal Bibliography of Ornithology". In this connection one is reminded that, as every one knows, Coues was under considerable obligation to his friend Professor Alfred Newton, of Cambridge, England, for assistance, advice, and encouragement in the preparation of his Bibliography. One of the treasures of the E.S.W. Library of Ornithology in McGill University is an autographed copy from Newton to Dr. Elliott Coues, "with the compiler's kind regards", in 1872, of "Extracts from the Record of Zoological Literature, vols. I–VI, containing the portions relating to Aves from 1864 to 1869". This compilation proved of great help to Coues in assembling data for his great work; and the copy in question is full of his marginal notes and bracketed paragraphs indicating the transference of numerous references whose verbiage one may readily recognize in the pages of the Instalments. There is ample evidence that when Coues decided he would be unable to finish the work so happily and successfully begun he did his best to engage the activities of others to that end. I submit the account of one of these efforts—that unfortunately ended in failure—in the form of a letter that came into my possession with a presentation by the author of the Instalments "to his friend W. Ruskin Butterfield". This communication deals with an arrangement two years before

→ 1895. List of birds of Heligoland. Indicating the mode of occurrence of each species. Based on Gatke. Prepared July 6-13, 1895. Author's original manuscript. This manuscript was never printed, an entirely different arrangement having been adopted for the printer. A presentation copy of the printed paper is bound in.

→ Countryman, The. Six volumes to 1933– and continuation.

his death, by Coues with Ruskin Butterfield, to proceed with and complete the publication of the Bibliography, so far as it concerned British birds. For this undertaking, Coues offers every assistance in his power, including the use of his collection of unpublished notes.'

1878. Field notes on birds observed in Dakota and Montana along the forty-ninth parallel during the seasons of 1873 and 1874. (*Bull. U.S. Geol. and Geogr. Survey*, vol. IV, No. 2.) *8vo. pp. 545–661. bibliogr.* *Washington.*

Special notes on 180 species of birds observed by the author during his connection with the United States Northern Boundary Commission in 1873–4.

1879. A check list of North American birds. *8vo. pp. 137.* *Salem.*

A list of species and subspecies recognized by the author, arranged and numbered consecutively from 1 to 635, with an appendix, pp. 123–37. Identical with the issue of 1873–4.

1879. *See* SENNETT, GEORGE B.

1880. Rural bird life; &c. *See* DIXON, CHARLES.

1882. The Coues check list of North American birds. 2nd ed., revised to date, and entirely rewritten, under direction of the author, with a dictionary of the etymology, orthography, and orthoepy of the scientific names, the concordance of previous lists, and a catalogue of his ornithological publications. *4to. pp. 165. addend. append.* *Boston.*

**** and **PRENTISS,** D. W.

1883. Avifauna Columbiana: being a list of [248 species of] birds ascertained to inhabit the District of Columbia. 2nd ed. *8vo. pp. 133+(3). front. 1 pl. 4 maps (fold., 3 col.). 100 figs. T. of c. index.* *Washington.*

1884. Key to North American birds. Containing a concise account of every species of living and fossil bird at present known from the continent north of the Mexican and United States boundary, inclusive of Greenland. 2nd ed., with which are incorporated general ornithology . . . and Field ornithology. *8vo. pp. xxx+863. front. (col.). 561 figs. T. of c. index.* *Boston.*

Bears the same general title as the first edition, 1872. Among the innovations, on pp. 1–227 are extended chapters on field ornithology and general ornithology which were published later as a separate work. The chapter on field ornithology was originally published with the 'Check-List' of 1874 as a separate work under the title, *Field Ornithology.*

[**1885**]. On the present status of Passer domesticus in America. With special reference to the western states and territories. *See* GURNEY, J. H.

1885. *See* KINGSLEY, J. S., *ed.*, 1885.

1886. The code of nomenclature and check-list of North American birds adopted by the American ornithologists' Union, being the report of the committee of the Union. *See* AMERICAN ORNITHOLOGISTS' UNION.

1887. Key to North American Birds, etc. 3rd ed. *8vo. pp. x+iv+xi–xxxiii+895. col. front. 561 figs. in text. index.* *Boston.*

Except an appendix (pp. 865–95) and a few minor changes in the text this edition is identical with the 1884 (second) edition.

1890. Key to North American birds. 4th ed. *8vo. pp. xxx+907. front. (col.). 561 figs. T. of c. 2 append. index.* *Boston.*

Printed from the same plates as the third edition (1887) with the addition of a second Appendix, in which are included discoveries and nomenclatural changes made since 1887 to January 1890 inclusive.

1890. Handbook of field and general ornithology, a manual of the structure and classification of birds with instructions for collecting and preserving specimens. *8vo. pp. 6+343. 112 illust. in text. T. of c. index.*

This is a section of the author's 'Key' published separately for the use of students of ornithology in general, and as such forms an admirable and extremely useful text-book.

1896. *See* ROOD, E. IRENE.

1897. Audubon and his journals. *See* AUDUBON, J. J.

1900. Citizen bird; &c. *See* WRIGHT, *Mrs.* M.

1903. Key to North American birds. Containing a concise account of every species of living and fossil bird at present known from the continent north of the Mexican and United States boundary, inclusive of Greenland and Lower California, with which are incorporated general ornithology . . . and field ornithology . . . The 5th ed. *2 vols. 8vo.* Vol. 1, *pp. (2)+xli+(1)+535. front. (col.). 1 pl. (portr.). 353 figs. T. of c.* Vol. 2, *pp. vi+537–1152. front. (col.). 394 figs. T. of c. append. index.* *Boston.*

Published after the death of the author, from manuscript left by him, and with a short appendix listing the species recognized by the American Ornithologists' Union after the completion of the manuscript. This appendix is presumably by J. A. Farley who edited the manuscript of the work.
There is a portrait of Coues in vol. 1, and a necrology of him by Elliot.

1927. Key to North American Birds, containing an Account of Every Species of Living and Fossil Bird at present known from the Continent, North of the Mexican and United States Boundary, inclusive of Greenland and Lower California. With which are incorporated, General Ornithology: An Outline of the Structure and Classification of Birds; and, Field Ornithology: A Manual of Collecting, Preparing and Preserving Birds. *2 vols. 8vo. pp. 1,152. col. front. 750 fine illust.* *Boston.*

Sixth Revised Edition, with the nomenclature of the American Ornithologists' Union, and including descriptions of additional species.
By many museums and large institutions considered the most useful of American bird books. Preceding the descriptions of species is found a manual of instruction for collecting, preparing, and preserving birds; structure and classification of birds, anatomy of birds, etc.

COULTER, JOHN G., **COULTER,** J. M., and **PATTERSON,** A. J.

1909. Practical nature study and elementary agriculture, &c. *See* COULTER, J. M.

COULTER, JOHN MERLE [1851–], **COULTER,** JOHN G., and **PATTERSON,** ALICE JEAN.

1909. Practical nature study and elementary agriculture; a manual for the use of teachers and normal students. *8vo. pp. ix+(1)+354. T. of c. index.* *New York.*

COUNTRY NOTES; A Journal of Natural History. 1882–3. *Manchester, Eng.*

COUPER, WILLIAM.

1867. Ornithology and oölogy of New England. *See* SAMUELS, EDWARD AUGUSTUS, 1867.

1868. Investigations of a naturalist between Mingan and Watchicouti, Labrador. *8vo. pp. 14.* *Quebec.*

An interesting account of a trip along the coast during the summer

[**COUPER,** W. (*contd.*)]

of 1867, for the purpose of identifying, collecting, and studying the eggs of birds found breeding on the coast, and as far as could be ascertained, in the interior of the country.

1870. The birds of New England, etc. *See* SAMUELS, EDWARD AUGUSTUS.

1881–3. *See* CANADIAN SPORTSMAN AND NATURALIST.

1883. Our northern and eastern birds. *See* SAMUELS, EDWARD AUGUSTUS, 1883.

COURCELLES, PAULINE DE.

1808–11. *See* KNIP P. [and TEMMINCK, C. J.].

COURTHOPE, WILLIAM JOHN [1842–1913].

1889. The paradise of birds. New ed. Illust. by Lancelot Speed. *4to. pp. xii+136. 28 figs.* *London.*

An attempt to deal in poetry with the incidents and theories of the day. The ablest modern Aristophanic satire, most charming in its bird-references. The first edition was issued in 1870, and although conditions had altered in 1889, the text has in no way been changed. The present copy is from the Mullens Library.

COWAN, WILLIAM DEANE.

1881. List of Madagascar Birds, etc. *4to.* (Wanting.) *Antanarivo.*

COWARD, THOMAS ALFRED, *ed.* [1867–], and **others.**

1910. The vertebrate fauna of Cheshire and Liverpool Bay. Two volumes. Vol. I, The Mammals and Birds of Cheshire, by T. A. Coward and C. Oldham; vol. II, The Dee as a Wildfowl Resort, by John A. Dockray. Illust. by Thomas Baddeley. Liverpool Bay. *2 vols. 8vo.* Vol. I, *pp. xxxii+472. front. 33 pl. T. of c. index.* Vol. II, *pp. xl+210. front. 19 pl. 1 map (fold.). 1 fig. T. of c. bibliogr. index.* *London.*

The present work is an attempt to give an historical and distributional account of the vertebrates of Cheshire. The portion devoted to 'The birds of Cheshire', will be found in vol. I, pp. 93–459, with 18 illustrations; and again in vol. II, pp. xxi–xl, 'The Dee as a Wildfowl Resort', with three illustrations. A copious bibliography will be found in vol. II, pp. 171–204. An earlier work on the birds of Cheshire was published by Coward and Oldham in 1900.

1911–13. The British bird book, &c. *See* KIRKMAN, F. B.

1912. The migration of birds. *12mo. pp. 10+137. 4 maps. T. of c. bibliogr. index.* *Cambridge.*

A popular treatise compiled from various authors. Gätke is more or less criticized, while the statements of other authors are treated as facts. The bibliography is by no means complete, and there are many grammatical errors in the text.

1919. The Birds of the British Isles and their Eggs, 242 col. illust. by Thorburn and others, 65 illust. of birds and their nests by Kearton and others.

First printing of this popular treatise.

1920. The birds of the British Isles and their eggs. *4to. pp. 7+376. 242 col. pl. T. of c. index.* *London and New York.*

This practical, popular guide to the avifauna and oology of the British Isles has passed through more than one edition. The reduced plates from Lilford's 'Coloured figures' add greatly to its value. The present volume is a copy of the first edition printed in December 1919, but not published until February 1920.

1922. Bird haunts and nature memories. Front. by Archibald Thorburn; photo. illust. *8vo. pp. 10+214. 23 pl. T. of c. index.* *London.*

Charming essays and written in a popular style, several reprinted from magazines.

1923. Birds and their young; illust. by Roland Green. *4to. pp. 8+151. 12 col. pl. 32 figs. in text. index.* *London.*

1923. Life of the wayside and woodland; when, where, and what to observe and collect. *12mo. pp. viii+216. front. (col.). 47 pl. (col., 12 birds). 63 pl. (3 birds). index.* *London.*

Supplementary to volumes already published in *The Wayside and Woodland Series.*

1926. The birds of the British Isles and their eggs. Second series comprising families *anatidae* to *tetraonidae* with 213 accurately coloured illustrations by Archibald Thorburn and others reproduced from Lord Lilford's work 'Coloured figures of the Birds of the British Islands', and 69 photo. illust. by E. L. Turner, R. Kearton and others. 3rd ed. *12mo. pp. viii+376. index.* *London.*

A very useful and well-illustrated manual on the subject.

1926. The birds of the British Isles. Third series comprising their migration and habits and observations on our rarer visitants. *12mo. pp. ix+308. 68 col. pl by Thorburn et al. 68 photo. pl. col. front. T. of c. index.* *London.*

A popular work with many colored illustrations reproduced from Lilford's *Birds of the British Islands.*

1927. Bird life at home and abroad with other nature observations. *8vo. pp. 12+237. col. front. 24 photo. illust. T. of c. index.* *London.*

COX, HARDING.

1923. 'Dogs and I'. *8vo. front. 73 illust.* *London.*

Popular and well-illustrated book on the principal pet species.

COX, NICHOLAS.

1674. The gentleman's Recreation. *1 vol. 8vo.* (Wanting.) *London.*

COXE, WILLIAM [1747–1828].

1787. A comparative view of the Russian discoveries with those made by Captains Cook and Clerke, and a sketch of what remains to be ascertained by future navigators. *4to. pp. 31.* *London.*

Many references to the faunal life encountered in famous world cruises. Rare; not in *Cat. Br. Mus.* (*Nat. Hist.*).

CRABTREE, J. H.

1924. A practical guide to nature study by woodland, field, pond and shore. *8vo. pp. 190. front. 11 pl. T. of c.* *London.*

CRAIG, WALLACE.

1909. The expressions of emotion in the pigeons. I. The blond ring dove (*Turtur risorius*). *8vo. pp. (2)+29–80+(2). 1 pl. (6 figs.). T. of c.* *Granville.*

Thesis for the degree of Ph.D. University of Chicago. Reprinted from the *Journal of Comparative Neurology and Psychology*, 1909.

CRAM, W. E.

1902. *See* STONE, WITMER, 1902.

1918. *See* STONE, WITMER, 1918.

CRANCH, JOHN.

1818. A general notice of the animals taken . . . during the expedition to explore the . . . river Zaire. *See* TUCKEY, J. K.

←Conpin, H. Les animaux excentriques. 4th ed. Paris.

=Coward, R.A. 1931. Bird and other Nature Problems. 8vo. pp. x, 246, 24 illus. from photos. London.

-1931. The Life of Birds. 8vo. pp. 94, 15 illus. (How-and-Why Series ed. by Gerald Buckett) London.

=17—. The Fowler. 8vo. London.

[New Zealand] "Christchurch Times" Jan 2/32.

IN TOUCH WITH NATURE.

PESTILENT INSECT.

THE MOSQUITO AND ITS VICIOUS WAYS.

By J. DRUMMOND, F.L.S., F.Z.S.

A mosquito swatted by Mr M. C. Astley, of Dargaville, North Auckland, on his desk one morning, has been sent for identification in case it should prove to belong to a species that carries yellow-fever. Last year, Mr Astley explains, an individual of the yellow-fever species was discovered in North Auckland and people were advised to take the offensive against the undesirable strangers. "It will be a relief to learn that my suspicions are groundless," Mr Astley writes. All fears were set at rest by Mr D. H. Graham, of the Marine Fisheries Investigation Station, Portobello, Dunedin, who, in 1929, published an important treatise on the mosquitoes of the Auckland district. He gives an assurance that the insect which alarmed Mr Astley is in no way like the malarial mosquito. It is a member of the common domestic New Zealand species, Culex pervigilans, present in the North Island and in the South Island wherever there are human habitations.

Wide Range.

Climatic conditions do not affect its capacity to reproduce. Its range is from sea coast to inland mountains. All the year round females lay their eggs in Auckland districts. In the month of June Mr Graham has taken hundreds of egg-rafts laid a short time before in water at a temperature of 42 degrees Fahrenheit. He has taken the grubs—he calls them larvæ—from water that had ice on it, and in places where 15 degrees of frost were registered three days in succession. His extensive investigations show that eggs of this species are in every sort of water—slowly flowing creeks, dirty or foul drains, street gutters, gully-traps, liquid manure barrels, drains around commercial premises, gutters on roofs, tarpaulins in railway yards, fire-buckets on railway platforms, drinking vessels in fowl-runs, flower-vases in cemeteries, puddles on roads, neglected water-tables, lakes, lagoons and wherever water accumulates for a few weeks.

Eggs Float on Rafts.

The egg-rafts are, perhaps, the most interesting feature of a female's activities, apart from its unpleasant taste for blood. As described by Mr Graham, the rafts are shaped like boats. Each raft, on an average, is loaded with about 265 eggs. The great lightness of the rafts, their shape, and the surface tension of the water, combine to keep them afloat in any weather. When one was submerged experimentally, a film of air caught between the tapered ends of the individual eggs quickly brought it to the surface again. Each raft is merely a cluster of eggs. About fifteen minutes are occupied in forming and loading it. The first egg is deposited on the surface of the water. Others follow at intervals of four seconds. When laying each egg, the female exudes a tough, elastic substance, which holds all the eggs together. For the mosquito's purpose, the device is absolutely perfect. No improvement can be suggested. Mr Graham found an egg-raft adhering to the side of a jar from which the water had been receded. The raft was kept dry for fourteen days. It then was placed in water, and the eggs hatched in seventy-two hours.

Carries Malaria.

Men of science all the world over are never tired of singing the praises of their fellow-workers who discovered that malaria is caused by a microscopical parasite, which passes through part of its life-history in human blood, and part in the body of a mosquito. It is stated that repeated experiments show without any doubt whatever that a person can normally contract malaria by only a bite from an Anopheles mosquito or one of its allies. The parasites enter the blood in this way. They penetrate the red corpuscles and destroy them.

Remarkable Book.

Since Dr Casey A. Wood, an eminent American naturalist, visited New Zealand about eight years ago, he spent a great deal of time compiling a remarkable work. It is "An Introduction to the Literature of Vertebrate Zoology," based chiefly on material in the Blacker Library of Zoology and other libraries of the M'Gill University, Montreal, Canada. The title conveys no idea of the scope, size, value, interest and unique character of this large quarto tome with 650 pages, each page packed with information. At the end of six years' effort, the work is sent out as merely a stop-gap until other hands publish a complete study of all vertebrate literature. This will be, perhaps, a series of twenty or twenty-five volumes ranking in importance with the imposing "Catalogues" of the British Museum, massed with details that make the mind reel in contemplation of men's industry.

Early Artists.

Following Dr Casey Wood's "Introduction" is an annotated catalogue of thousands of publications, occupying 470 pages. The work begins at the beginning, several thousand years before the Christian era, when primitive artists made frescoes of animals and cut pictures of them in rock. Aristotle, born 384 B.C., is the first serious writer on zoology whose works have survived. The treatise traces natural history from Aristotle's times through the Middle Ages and later centuries, sketches naturalists' voyages and expeditions, describes the rise of Darwinism, and explains evolution and modern methods of study. In the catalogue section, New Zealand is largely represented. The first reference is to Dr E. Dieffenbach's "Travels in New Zealand," published in London eighty-eight years ago. The M'Gill University Libraries have thirty-five original sketches and coloured drawings by J. G. Keulemans for Sir Walter Buller's "New Zealand Birds." They disclose his method. He first sketched his subject from a specimen, and made notes to guide him in producing the finished picture. He was born at Rotterdam, and was easily the best and most popular painter of birds of his day, from 1870 to 1900. A copy of Dr Casey Wood's work has been sent by the Oxford University Press, London, which published it, with the compliments of the Blacker Library of Zoology, M'Gill University. Price, £3 3s.

An Introduction to the Literature of Vertebrate Zoology.

Adequately to indicate the contents of this compendious work would necessitate much more space than we are unfortunately able to give. There are three main sections, the first being a concise analysis of zoological literature from the earliest records to the present, the second a students' and librarians' ready index, arranged both chronologicall and geographically, and the last, by far the largest, a catalogue of the literature on all branches of vertebrate zoology in the McGill University Libraries - a total of nearly 400,000 volumes.

The 146 pages devoted to an account of zoological records cover a multitude of subjects, and include references to all accredited workers. Aristotle, Caius Plinius Secundus and early Moslem and Chinese naturalists are first referred to; mediaeval writers follow - Albertus Magnus, Leonardo da Vinci, Aldrovandus, Gesner, and many others. Accounts are included of the formation of scientific institutions, academies, societies and museums throughout the world. Working down closer to our own times, more familiar names begin to appear from amongst hosts of others - Lankester, Darwin, Haeckel, Wallace, Huxley, Newton and Shufeldt. The principal voyages and expeditions of scientific discovery are briefly described, and most of the more important surveys and explorations

STANFORD UNIVERSITY

DEPARTMENT OF ZOOLOGY

STANFORD UNIVERSITY, CALIFORNIA

Ans Dec 24/31

November 11, 1931

Dr. Casey A. Wood,
Authors' Club,
2 Whitehall Court,
London, S.W.1,
England.

My dear Dr. Wood:

I wish to express my sincere appreciation for your kindness in placing my name on the mailing list for your "Introduction to the Literature of Vertebrate Zoology". The copy arrived yesterday and I have had a most interesting evening perusing it. As a fellow bibliophile I must congratulate you upon the publication of a great work on a great series of libraries. The wealth of rarities listed reflects the fine care and enterprise which must direct the McGill collections. I only wish that a similar interest in the building up of a zoological library might spring up here at Stanford.

In general plan I think the work excellent and it should be of great use to librarians as a guide in a policy of careful expansion of zoological collections. In my own work it will be extremely valuable in directing students in the vertebrate classes (which I have taken over from Prof. Snyder this year) to the literature and history of the subject, particularly in ornithology. I already see that I shall constantly refer to it for citations in the absence of the British Museum Catalogue here at the Natural History Museum.

I think it is evident that I appreciate the work to the fullest and I therefore trust that you will not take amiss some adverse comment. My own fields are ichthyology and herpetology and it is only upon these that I feel qualified to speak. Your evaluations of ichthyological and herpetological literature (Chapters fifteen and sixteen) might be emended to considerable advantage. Much of the trouble is found in the manner of listing in the Catalogue, to which I shall return shortly. Many of the most important works are given scant and insufficient mention while papers of very

AN INTRODUCTION TO THE LITERATURE OF VERTEBRATE ZOOLOGY based chiefly on the titles in the Blacker Library of Zoology, the Emma Shearer Wood Library of Ornithology, the Bibliotheca Osleriana, and other libraries of McGill University, Montreal. Compiled and edited by Casey A. Wood. 4to, pp. xix + 643, col. frontisp. Oxford University Press, London, 1931. Fifteen dollars or three guineas.—The content of this magnificent and beautifully published volume is indicated in the official announcement as being "divided into three main sections. The first consists of introductory matter which furnishes a brief account of the literature of Vertebrate Zoology from the earliest times to the present—from the writings of ancient and medieval zoologists ..... to the more important treatises and monographs on ornithology, mammalogy, ichthyology, herpetology, and amphibiology of the twentieth century. Included are general treatises and numerous periodicals and serials, monographs on vertebrate paleontology, zoogeography, ecology, psychology, bionomics, experimental zoology, &c., likely to interest the advanced student and the librarian. ..... The second section is the largest and most valuable for both the research student and the librarian—a partially annotated Catalogue of the vertebrate zoological items in all the University libraries, forming a very large selection of important works on that vast subject. ....."

The chapters in which the outstanding literature on cold-blooded vertebrates is tersely but well discussed are Chapter 15, "Important treatises on ichthyology from the earliest times to the present", and Chapter 16, "Selected titles from the literature of herpetology and amphibiology". In these the Catalogue, which forms the bulk of the volume, is rich in references to older and rarer works, but makes no pretence toward completeness in the larger field of modern literature. Ichthyologists will find the Catalogue useful as a supplement to Dean's Bibliography. All vertebrate zoologists will profit from the historical summary of the literature in their own fields, and brother bibliophiles will appreciate the ardor of the collector and compilor, Casey A Wood, through whose generosity and interest the McGill libraries obviously have derived much of their outstanding richness in the field covered by this "Introduction".—CARL L. HUBBS, Museum of Zoology, University of Michigan, Ann Arbor, Michigan.

Given me by Prof Lynn Thorndike
Nov 26/36

Valery (1842)

Bessarion's letter to Venice bequeathing his library: 155-4

DR. CASEY WOOD
AMERICAN EXPRESS CO.
ROME, ITALY

"To the most illustrious and invincible prince Cristoforo Mauro, doge of Venice, and the most august senate, Bessarion, cardinal and patriarch of Constantinople, sends greetings:

"From my earliest youth I have applied all my attention, efforts, and zeal, to the collecting of books on the different sciences. In my boyhood I transcribed many with my own hand, and the little money, that a thrifty frugal life afforded me, I devoted to the purchase of others. It seemed to me that there did not exist in the world an article more useful, a treasure more precious: books, indeed, contain and present us with the words of the sages, the examples of antiquity, its manners, laws, and religions; they live, converse, and speak with us; they give us instruction and consolation, and lay before our eyes the remotest objects as if actually present. Such is their power, their dignity, their majesty, their divinity even, that if they did not exist we should all be ignorant barbarians; there would remain no trace or memory of the past; we should have no acquaintance with things human or divine, and men's names would be buried with their bodies in the tomb. Although I have ever been occupied in searching for Greek books, my zeal and ardour redoubled after the ruin of Greece and the ever-to-be-lamented taking of Constantinople, and I devoted all my powers to collect them; I feared, I trembled that so many excellent works, so much of the labour and midnight toils of great men, so many lights of the world, might be exposed to imminent destruction ..... To the utmost of my abilities, I have, in all cases, preferred merit to quantity, being satisfied with a

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